

Inside Dope

By GEORGE
F. TAUBENECK



Learn to live and laugh —
thus delay your epitaph

Stories of the Week
Our Athletic Subscribers
Frank Pond on Ice
Fullback Bob Hoelscher
Hearts and Flowers

Stories of the Week

Rolls Royce does not reveal the horsepower of its ultra-expensive automobiles.

Curious owner sent a letter of inquiry to Rolls Royce headquarters, to wit:

"What is the horsepower of my R. R. Silver Cloud?"

Laconic answer:
"Adequate."

You know about those automatic garage door openers-and-closers, of course. Some operate with a photoelectric cell; others by pushbutton. Once you push the button you can't stop the operation until it is completed.

The latter-type thingamajig really fouled up a Dayton, Ohio, man (friend of a friend of ours). He pushed the button, then he and his dog entered the family coupe.

Followed next a rip-snorting dog-and-cat fight all over the front seat.

Unsuspected, a big alley tomcat had boarded the car. Mr. Dayton's enraged dog lunged for Big Tom, and the latter let him have it, but good.

All this happened while the Dayton man was backing out of his garage. He couldn't stop, he said, because the garage door would crunch down on the car if he did.

Anyway, he pressed the accelerator, lost control as both dog and cat gouged him, and wound up with a badly smashed auto. Plus lacerations.

There is a theory, you know, that mechanical contrivances hate human beings. We submit this case history in support of the theory.

Our Athletic Subscribers

People attending the 47th annual convention of the Michigan Heating & Sheet Metal Association, in Grand Rapids' Hotel Pantlind, enjoyed a special treat. Luncheon speakers were two of the nation's top college football coaches: "Bear" Bryant of Alabama and "Bud" Wilkinson of Oklahoma.

Bear and Bud got a lot of laughs by relating gridiron anecdotes. One of Wilkinson's stories was his own version of the following yarn:

Only one minute to go in a big grid battle. Score: 7 to 6. Coach

(Concluded on Page 18, Col. 1)

Carrier Drives For Universal B.t.u.h. Ratings

SYRACUSE, N. Y.—A campaign "to end the misleading use of horsepower ratings as the measurement standard for room air conditioners" is being launched by Carrier Corp.

The firm announced it is "leading a move to exclusively use British thermal units as the true measure of cooling capacity."

Russell H. Gray, Carrier vice president and general manager of the Unitary Equipment Div., says his company is carrying this educational program to its dealers and customers because of the inconsistencies of horsepower designations as used by some manufacturers of room units.

Gray points out that one air conditioner producer rates a 1-hp. unit at 6,300 B.t.u. while another offers a 1-hp. model with a rated capacity of 14,000 B.t.u.

"Similar inconsistencies exist," stresses the Carrier official.

(Concluded on Page 31, Col. 2)

In 1957

2-Hp. Compressor Shipments Tripled

WASHINGTON, D. C.—Manufacturers' shipments of compressor bodies reported to the Air-Conditioning & Refrigeration Institute for the Calendar year 1957 totaled 3,956,505 units (not including compressors for household refrigerators), a drop of about 12% from the 1956 total.

Shipments in 1956 totaled 4,775,843 units, which was a gain of more than 32% over 1955, according to Geo. S. Jones Jr., managing director of ARI.

In announcing the year-end figures, Jones pointed out that decreases in shipments from 1956 figures were noted in all categories except 2 hp., 10 hp., 25 hp., 30-and-over, and in automotive compressor units.

(Concluded on Page 31, Col. 3)

But Why?

Dynamite Explosion Damages Waco Firm

WACO, Texas—John Jacobs and Bill Cathey of Jacobs-Cathey Air Conditioning Co. here said recently that they knew of no reason for anyone to try to blow up their office building in west Waco.

But somebody had. A middle-of-the-night dynamite explosion blasted a hole "big enough for a man to stand in."

Police found 45 other sticks of high-explosive dynamite in the building, along with 10 ft. of burned fuse. Forty-three

(Concluded on Page 31, Col. 3)

Refrigeration a Pawn In 'Giveaway' Row? FTC Charges \$47,000,000 In Cases Out

Reports Indicate There May Be 'Blue Skies' Ahead In Building

WASHINGTON, D. C.—Are "blue skies" ahead?

Recent developments from various government agencies may shed some light on the subject of whether anti-recession moves will bring an upswing in air conditioning and refrigeration, particularly in the sensitive residential market.

Prospects for a continued rise in privately-financed home construction were further brightened when Commissioner Norman P. Mason of Federal Housing Administration reported Febru-

ary applications for FHA-insured loans for newly-constructed residences poured into FHA offices at a rate 70% higher than for the same 1957 month.

Applications covering 20,600 units in new one to four-family homes were up 20% over January, a continuation of a marked increase in applications. They leaped 64% higher this January than the preceding one.

Total applications received in February covered more than 52,000 units, the FHA said. This

(Concluded on Back Page, Col. 1)

WASHINGTON, D. C.—How big a pawn refrigeration equipment is in the rough and tumble battle for ice cream distribution was indicated in a brief filed with Federal Trade Commission Hearing Examiner John Lewis recently by attorneys supporting a complaint of unfair trade practices against nine of the country's 10 largest ice cream manufacturer-wholesalers.

According to records produced and sworn testimony of witnesses in more than two years of hearings, these nine firms—who between them sell an estimated half of the ice cream gallonage moved at wholesale in the United States—had approximately \$46,735,000 invested in retail ice cream cabinets at the end of 1955.

These were allegedly given or rented to their retail accounts.

About 10% of this investment, according to the FTC attorneys' brief, was in "unwarranted" cabinets—that is, cabinets used by retailers to store or display products other than those supplied by the ice cream company.

Ice cream cabinet investment by these nine firms for 1955

(Concluded on Page 25, Col. 3)

O. A. Sutton Corp.

Cooling-Heating Package Unit Leads '58 Line

WICHITA, Kan.—O. A. Sutton Corp.'s 1958 "Vornado" air conditioning line includes a new cooling-heating package unit called the "Comfort Commander" which operates on a reverse cycle refrigeration principle.

Among other products in the line are 11 "Deluxe" room unit models in 1, 1½, and 2-hp. sizes, all with a "new air control principle" known as "Stereo-phantic Cooling." The company said this feature "permits a single window unit to complete-

(Concluded on Page 4, Col. 1)

NCRSA Reports

3½% Dollar Rise In Sales for '57

PHILADELPHIA—The National Commercial Refrigerator Sales Association announced that members participating in its quarterly report showed an average total-dollar-sales increase of 3.54% for 1957 over 1956 despite a decline of 4.79% in the fourth quarter.

Dollar net profit before taxes in 1957 decreased an average of 1.65% compared with the previous year. Inventory on Dec. 31, 1957 was down 1.52% from the same date a year earlier and accounts receivable were up 2.09%.

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Cooled Tracking Stations Trace 'Vanguard' Rise Technical Sessions Set May 7-11 with Western Exhibit

SYRACUSE, N. Y.—When America's "Vanguard" satellite zoomed up to its earth-circling orbit it was tracked by a radar so accurate it could call a six-inch ball hit out of Yankee Stadium "fair or foul" from a point 88 miles away.

These atmosphere-piercing radars produced by Radio Corp. of America and developed for the Navy Bureau of Aeronautics, were operated from air conditioned tracking stations beneath the rocket's path on the Florida Coast and Grand Bahama Island 165 miles away. Their job was to provide information vitally necessary for successful orbiting of the satellite and to pinpoint the impact areas of the rocket stages.

The radar stations will quickly reveal if a satellite-bearing rocket is "on course" for its

(Concluded on Page 31, Col. 4)

LOS ANGELES—A comprehensive program for technical sessions has been announced by the Western Air Conditioning Industries Association in conjunction with its Air Conditioning, Heating, Ventilating and Refrigeration Exhibit at the Shrine Exposition Hall here May 7-11.

General technical sessions on the opening day, May 7, will come under the chairmanship of the associated president, William P. Tennity, and will include:

"Large Absorption Systems for Air Conditioning," Robert H. Phillips, Carrier Corp., Los Angeles; "Results of Some Studies on Air Pollution," Dr. Alexander Goetz, California Institute of Technology, Pasadena; "Low and High Temperature Environment Chambers,"

(Concluded on Page 10, Col. 1)

ARI Offers Newspapers, Magazines ASHAE, ASRE Plan Joint Conferences at Clipsheet on Residential Cooling Minneapolis Conventions June 23-25

WASHINGTON, D. C.—The Air-Conditioning & Refrigeration Institute has prepared a 6-page clipsheet on residential air conditioning for the use of publications requiring editorial material for special sections on the subject during the coming spring and summer months.

The clipsheet, which includes articles of varying lengths covering the benefits of air con-

ditioning, tips on selection of units, and types and kinds available, also contains a number of half-tones and line drawings which may be reproduced by using publications. The illustrations are available either in mat form or as glossy photographs.

The clipsheet is being mailed out to all daily papers with circulation of 25,000 or over as well as to consumer publications.

Extra copies may be obtained by writing to the Public Relations Dept., Air-Conditioning & Refrigeration Institute, 1346 Connecticut Ave., N. W., Washington 6, D. C. This is the third year that ARI has issued this publication as an aid to editors of special air conditioning sections and editions.

NEW YORK CITY—With separate technical sessions and forums, but with several joint conferences and a number of social events, The American Society of Refrigerating Engineers and the American Society of Heating & Air-Conditioning Engineers will both meet in Minneapolis June 23-25.

For ASRE it will be the 54th annual meeting. For ASHAE it will be a semiannual meeting. ASRE headquarters will be at the Leamington hotel; ASHAE at the Nicollet hotel.

Plans have been made for three technical sessions of ASRE with nine papers on various subjects, authored and presented by industry authorities. These sessions are set for each of the three mornings.

Additionally, the domestic refrigerator engineering conference will be held concurrently on Monday morning, June 23. Six forums are planned for Tuesday afternoon.

Joint conferences will be on air conditioning (ASRE-Leamington) Monday afternoon, insulation (ASHAE-Nicollet) Tuesday morning, education (ASRE-Leamington) Tuesday afternoon, and condensing methods (ASHAE-Nicollet) Wednesday morning.

First get-together of the occasion will be an informal gathering under ASRE sponsorship on Sunday evening at the Leamington to which ASHAE members and guests are invited. On Monday evening ASHAE is having a similar assembly with those

attending the ASRE meeting as invited guests.

Each society will have its own welcome luncheon on Monday but a dinner-dance on Tuesday evening will be a joint affair. At the ASRE luncheon, newly-elected officers will take over.

Predict Above Normal Temperatures for Wide Area for 30-Day Period

WASHINGTON, D. C.—The U.S. Weather Bureau 30-day forecast for the period from mid-March to mid-April calls for temperatures slightly above normal in New England, the upper Great Lakes region, and the extreme Southeast, and below normal over the western half of the nation.

Precipitation is expected to exceed normal over most of the nation except for the Eastern part of the country, in states bordering the Great Lakes, and over the Pacific Northwest.

LP-Gas Distributor

Charged with Coercion

WASHINGTON, D. C.—Rural Gas Service, Inc., Westfield, Mass., a large distributor of liquefied petroleum gas in the New England area, was charged recently by the Federal Trade Commission with entering into monopolistic exclusive dealing and tying contracts with its wholesale distributors.

The company also is charged with enforcing these contracts by unlawful means and discriminating in price among its retail customers.

A Commission complaint alleges the company sells "Rural Gas" to its 110 wholesale distributors on the condition that they do not use or deal in competitors' LP-Gas, cylinders, or related equipment. By tying in the purchase of its gas to the rental or loan of its cylinders and service equipment, Rural Gas makes these restrictive agreements completely effective, the complaint charges, because it is commercially impossible for the distributors to handle the product without these facilities.

NLRB Dismisses Charges Against Ft. Worth Firm

WASHINGTON, D. C.—National Labor Relations Board has dismissed charges filed by an individual that Bonded Plumbing & Heating Co. of Ft. Worth, Texas maintained a closed shop hiring practice with Local 146, Plumbers & Pipefitters, AFL-CIO.

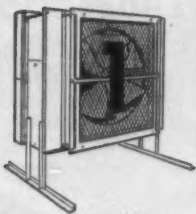
It was charged in the complaint that a foreman, as a union member, hired only members in good standing with the union who were referred or cleared by the union. In addition, it was alleged that the company refused to hire the charging party unless he obtained a referral from the union.

The board said that with no exceptions having been filed to a Jan. 20 intermediate report, it adopted Trial Examiner George A. Downing's findings, conclusions, and recommendations dismissing the complaints. Evidence failed to establish the allegations the firm maintained a closed shop hiring practice, NLRB ruled.

ONLY KRAMER UNICON + WINTERSTAT* GUARANTEES ALL

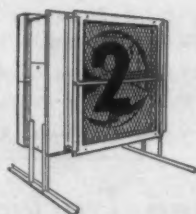
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MAXIMUM LIQUID PRESSURE AT EXPANSION VALVE IN WINTERTIME



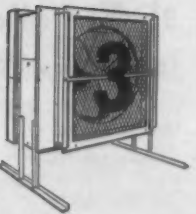
Only the Kramer UNICON plus WINTERSTAT guarantees the full refrigerant pressure at the expansion valve for full cooling capacity — even at below 0°F outdoors — automatically!

MAXIMUM SUMMER CAPACITY WITH PATENTED WINTERSTAT



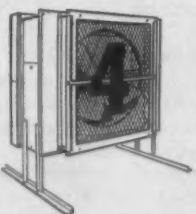
Only Kramer UNICON plus WINTERSTAT guarantees maximum condensing capacity in summer. In hot weather, the patented WINTERSTAT is out of the refrigerant circuit, permitting normal drainage from the condenser without restriction. This assures maximum condensing capacity in summer — automatically!

PROMPT DEFROSTING AT ANY OUTDOOR TEMPERATURE



The use of UNICON plus WINTERSTAT makes Kramer THERMOBANK the only low temperature system that can guarantee operation and complete defrosting at any outdoor temperature—even 0°F or lower — automatically!

IMMEDIATE COMPRESSOR START-UP REGARDLESS OF OUTDOOR WINTER TEMPERATURE



Only Kramer UNICON plus WINTERSTAT (using modification #1) ensures positive and immediate compressor start-up with pressurestat operating the system, regardless of outdoor winter temperatures at the UNICON and regardless of length of compressor lay-off — automatically!

*UNICON is a remote type air-cooled condenser WINTERSTAT is a year 'round automatic head pressure control
WRITE FOR BULLETIN U-210-L

KRAMER TRENTON CO. • Trenton 5, N.J.

44 YEARS OF CONTINUOUS ACHIEVEMENT IN HEAT TRANSFER



Chart your progress for bigger air conditioning sales from now on with GENERAL ELECTRIC BLUEPRINT for LEADERSHIP

In Residential Heating and Cooling ★ ★ ★ ★ ★

In Commercial, Industrial Air Conditioning ★ ★ ★ ★

This is going to be the BIG year for dealers of G-E Air Conditioning Division products—the year G-E Dealers move way out front in sales—because General Electric offers a BLUEPRINT FOR LEADERSHIP. It's designed to do just one thing: show air conditioning and heating dealers how to sell and install *more products than ever!* The Plan is built around the selling power of the General Electric name—the quality and variety of General Electric products. It includes a course in selling, General Electric's attractive financing plans, hard hitting advertising and sales promotion, and guided local advertising. If you don't have a G-E franchise, now's the time to inquire. Contact your nearest General Electric Distributor or mail coupon today. General Electric Co., Air Conditioning Division, 5 Lawrence Street, Bloomfield, N. J.

FOR FAST ACTION...contact your nearest General Electric Air Conditioning distributor, or the G-E Regional Manager in your area.

NORTHEASTERN REGION, NO. 1

570 Lexington Ave., Room 302, New York 22, N. Y.
J. J. Heffernan, *Regional Manager*

EAST CENTRAL REGION, NO. 2

20310 Kinsman Road, Suite 3, Shaker Heights 22, Ohio
W. H. Grant, *Regional Manager*

CENTRAL REGION, NO. 3

The Merchandise Mart, Room 1188, Chicago 54, Illinois
W. A. Mulcock, *Regional Manager*

SOUTHEASTERN REGION, NO. 4

410 Red Rock Building, Atlanta 3, Georgia
P. M. Hooven, *Regional Manager*

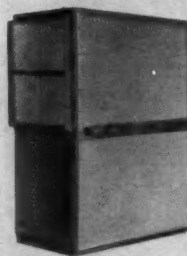
SOUTH CENTRAL REGION, NO. 5

511-513 International Trade Mart, New Orleans 12, La.
E. J. Guillory, *Regional Manager*

General Electric Offers a Complete Line of Heating and Cooling Units for Homes, Offices, Stores, Factories



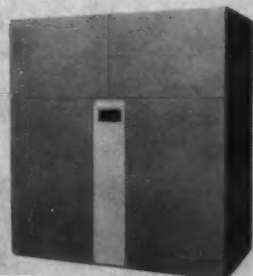
Air-Cooled Split Systems



Weathertron all-electric heat pumps



Year-Round Air Conditioners



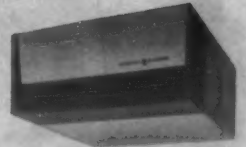
Floor-Mounted Air Conditioners, Air- and Water-Cooled



Packaged Whole-House Air Conditioners



Self-Contained Ceiling-Mounted Air Conditioners



Split Systems

OR MAIL COUPON

Progress Is Our Most Important Product

GENERAL ELECTRIC

In Canada, Canadian General Electric Co., Ltd., Montreal

**General Electric Company, Air Conditioning Division
5 Lawrence St., Bloomfield, N. J.
Attention Mr. H. N. McMenimen**

I am interested in signing up with General Electric so that I can benefit from G.E.'s Blueprint for Leadership Plan.

I am interested in residential heating and cooling ☐

I am interested in commercial and industrial air conditioning ☐

I am interested in both ☐

NAME _____

FIRM _____

ADDRESS _____

CITY _____

ZONE _____

STATE _____

ACD-SA

Sutton Offers '58 Line--

(Concluded from Page 1, Col. 5) area where outside temperatures did not drop below 35° F. In cooler areas auxiliary strip heaters can be placed in the unit to increase its heating capacity.

Units are designed to be added on to existing ductwork, and Vornado officials report that many have been installed in new construction. Units are available in two sizes, 2 and 3½ hp. The former "is capable of delivering a full 2 hp. of cooling effect in summer and reverses to deliver up to 23,500 B.t.u. of heating in cool weather," the announcement said.

"Once the unit is installed the homeowner needs only to set a thermostat at desired home temperature," the announcement said. "A flick of the switch provides automatic, instant change over from cooling to heating or heating to cooling."

Sutton officials explained that as a heating unit the Comfort Commander was ideal for any

area where outside temperatures did not drop below 35° F. In cooler areas auxiliary strip heaters can be placed in the unit to increase its heating capacity.

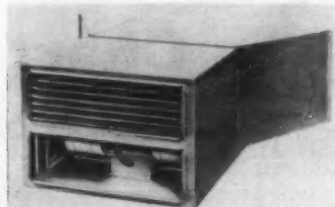
Units are designed to be added on to existing ductwork, and Vornado officials report that many have been installed in new construction.

Units are available in two sizes, 2 and 3½ hp. The former "is capable of delivering a full 2 hp. of cooling effect in summer and reverses to deliver up to 23,500 B.t.u. of heating in cool weather," the announcement said.

The larger unit "delivers a full 3½ hp. of cooling effect and up to 45,750 heating B.t.u. in winter. Both units are powered with two individual commercial type compressors. They automatically defrost when necessary."



NEW "Vornado Deluxe" room air conditioners deliver claimed huge volumes of draft-free air throughout the entire conditioned area due to a new principle, "Stereophonic Cooling."



MODEL B350A air-cooled Sutton residential air conditioner.

The unit can be added to existing ductwork or installed in new construction.

Automatic cooling or heating is provided by thermostatic controls. A three-position switch in conjunction with the thermostat "provides fingertip control."

In describing its Deluxe room air conditioners, the company said the new Stereophonic Cooling makes the units capable of cooling larger areas with greater effectiveness.

Another feature of these window units is a "Fast Cool Button."

'FAST COOL' BUTTON GIVES QUICK EFFECT

"If the unit has not been operating and the house is hot, pushing the Fast Cool Button causes the unit to deliver 27% faster cooling effect than when in normal operation," the announcement said.

Four engineering achievements have made Stereophonic Cooling action possible in Vornado's new window units, the company said.

"Air-scoop" action is used to power circulate the air.

An "Acceleration Chamber" has been added to the units "that causes the air to gain additional speed and penetration ability." Adjustable air nozzles that rotate 360° and tilt up or down are said to provide "pinpoint" control of air direction.

In addition, cooling capacity and humidity control have been improved, according to Sutton.

Continued in the window air conditioner line is the "Custom 200." This year's model has been redesigned and had engineering refinements added "to make it more efficient, while reducing cabinet size."

The Custom 200 will fit in any standard window that has a minimum opening of 27¾ in. wide and 18 in. high. It is available in both 208 and 230-volt models.

An air conditioner designed for homes and apartments with casement windows is again included in the Vornado line. This unit is available in ¾ and 1-hp. sizes. Both are 7½-amp. models which may be operated from ordinary 115-volt house current where wiring is adequate and local codes permit.

Sutton has also introduced a specially-designed builder's kit that permits installation of the room air conditioner cabinet during construction, and optional installation of the air conditioning unit after construction is completed.

Model number, size, and volt-amp. data on Deluxe units:

Model No.	Size	Volts-Amps
L100D-1	1 hp.	115-7½
D100D-1*	1 hp.	115-12
R100D-1	1 hp.	115-12
D100D-2*	1 hp.	208
R100D-2	1 hp.	208
D100D-3	1 hp.	208
D150D-1	1½ hp.	115-12
D150D-2*	1½ hp.	208
D150D-3	1½ hp.	208
D200D-2*	2 hp.	230
D200D-3	2 hp.	208

*Also available with reverse-cycle action.

OFFERS AIR-COOLED RESIDENTIAL UNIT

Also being offered is model B350A, an air-cooled residential air conditioner which the company claims "will completely air condition the average three-bedroom home at a cost any average homeowner can afford." The units are also available in reverse cycle models and either

type unit in 2 or 3-hp. sizes.

Optional ductwork made of prefabricated insulated "Fiberglass" can be had with the unit, which is powered with two compressors. Another feature is the Vornado air diffuser. Because it is made with adjustable fins, the diffuser can be located in almost any area in the ceiling and efficiently direct the air throughout the room, the firm said.

So Halstead & Mitchell
Engineers Said...

COUNTERFLOW, CLEANABLE WATER-COOLED CONDENSERS MAKE "CHAIN-REACTION" SALES

A CHAIN REACTION—one sale leads to another when users experience the twin advantages of H&M's Water-Cooled Condensers—peak efficiency and lowest maintenance.

Double-tube design and counterflow introduction of water and refrigerant assure most efficient heat transfer. Refrigerant flows through the outer tube and the water through the inner tube for maximum heat interchange.

Removable headers permit easy water tube cleaning with a simple, accessory cleaning tool. Scale and sludge

which reduce heat transfer are removed without harmful chemical cleaners. Condenser capacity is maintained at clean-tube performance ratings for unit lifetime.

Condenser compactness makes these units ideal for conversion of under-capacity air-cooled refrigeration systems. All H&M units are U/L approved for use with refrigerants -12 or -22.

Call your wholesaler or write Halstead & Mitchell, Bessemer Building, Pittsburgh 22, Pa.

ONLY HALSTEAD & MITCHELL OFFERS THIS WIDE CHOICE

HEAVY DUTY (Type T) condensers have a highly favorable fouling factor and are designed for long service between cleanings. ½ through 25 tons.

STANDARD DUTY (Type EL) are made with extended surface water tubes, ideal for water-cooled systems under all average conditions. ½ through 3 tons.

REPLACEMENT CONDENSERS (Type R) are shorter, higher condensers designed for use in package air conditioners. Easily installed. 1½ through 10 tons.

SEA WATER CONDENSERS (Type SW) are made with cupro-nickel water tubes and naval brass headers for resistance to impure water. ½ through 25 tons.



ALL-NEW INSULATION

FOR GENERAL ELECTRIC HERMETIC MOTORS...



80-95% less moisture content reduces required dryout time . . . greater thermal stability permits 35° F higher operating temperatures

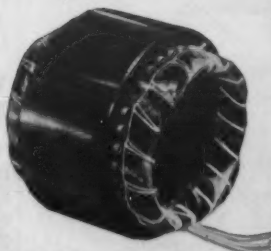
G.E.'S 31 YEARS OF LEADERSHIP IN HERMETIC MOTOR DESIGN

- 1927 - first successful hermetic motor
- 1928 - cast-aluminum rotor
- 1938 - Formex® insulated wire
- 1946 - welded stator core

1958

NEW

ALL-SYNTHETIC
INSULATION SYSTEM



General Electric now offers hermetic motors with a new, completely synthetic insulation system. The result of many years of development, this new insulation system offers manufacturers and users of refrigeration and air-conditioning compressors many advantages, including:

LESS MOISTURE: 80-95% less moisture content (less than 0.2 cc in a typical 1-hp motor) in the insulation system means faster drying, thus increasing dryout capacity.

GREATER THERMAL STABILITY: greatly improved thermal stability of the new G-E hermetic motor insulation system permits operation at a 35°F higher temperature. Higher peak and continuous temperature capabilities of the new insulation system should simplify the overload selection for balanced running and stalled protection.

*Registered trade-mark of
General Electric Company

INCREASED MOTOR DEPENDABILITY: greater thermal and chemical stability, electrical strength, and physical durability in the presence of common refrigerants and oils should extend motor life. This new insulation system is the result of tests of potential insulating materials, separately and in combination, for thermal stability, lubricant solubility, refrigerant resistance, hydrolytic stability, and material uniformity, in addition to accelerated compressor life tests.

THE BENEFITS of the new insulation system can be yours! General Electric hermetic motor parts with the new insulation system are available for testing in your product, in your own way, to aid you in determining the benefits of the new, all-synthetic insulation system. General Electric Company, Schenectady, N. Y.

703-1

Progress Is Our Most Important Product

GENERAL  ELECTRIC

**Know
where you're
heading . . .
Insist upon
READING!**



READING COPPER TUBING

truly trouble-free

**for Refrigeration &
Air Conditioning Equipment**

Made by Copper Tube SPECIALISTS

READING TUBE CORPORATION

EMPIRE STATE BUILDING NEW YORK 1, N. Y.

WORKS: READING, PA.

Minneapolis All-Industry Educational Conference Set for April 11-12

MINNEAPOLIS — Four sessions of an "All Industry Educational Conference" for contractors and salesmen and eight sessions for air conditioning and refrigeration installers and servicemen will be spotlighted by co-sponsors Upper Midwest Regional Association, Refrigeration Service Engineers Society, and W. H. Dunwoody Industrial Institute here April 12.

RSES members are urged to attend the group's general meeting Friday, April 11 also.

First Twin City Educational Meeting

Claimed to be the first educational conclave ever held for contractors, salesmen, and servicemen in the air conditioning, heating, and refrigeration field

in the Twin City area, the Upper Midwest Regional Association RSES and Dunwoody non-profit industrial and mechanical training school have combined on the program.

Robert T. DeVore, midwest manager of extension division, E. I. du Pont de Nemours & Co., Inc., will be principal speaker at a general banquet at the Francis Drake hotel Friday evening. He will talk on "Strength for Tomorrow." The hotel is also the site for the first RSES conference.

Ladies will have a luncheon with entertainment and prizes at the hotel Saturday, April 12, at 1:30 p.m. Educational sessions are held at Dunwoody Institute Saturday.

On April 11 registration opens at 1 p.m. for attendees and a general RSES meeting is set for 2. Committee meetings are scheduled for 4 p.m. with dinner from 5 to 7 and a get-together from 8 that evening to midnight.

Salesmanship To Be a Feature

On April 12 from 9 to 10:20 a.m. Bill Rice of E. I. du Pont de Nemours & Co., Inc., will discuss "Salesmanship," a representative from Thermal King will cover "Truck Refrigeration Service," and Edward Asproth of Asproth Refrigeration, "Sealed Unit Service."

From 10:40 to 12 noon J. R. Frame, Frigidaire Div., General Motors Corp., will talk on "Service Can Pay," a Trane Co. representative will cover "Installation and Service for Package Air Conditioners," and three men from McQuay, Inc. will handle "Installation and Service of Low-Temperature Equipment." Lunch will be served from 12 to 1.

"Estimating Air Conditioning Loads" will be one subject from 1 to 2:20 p.m. along with representatives from D. W. Onan & Sons, Inc. explaining "Servicing Cab Coolers," and men from Mammoth Furnace Co. covering "Service and Installation of Industrial Modulating Direct Field Heaters."

Dick Frank of Frank Refrigeration will talk on "Service and Installation Records" from 2:40 to 4 p.m. At the same time John Bopp from Ansul Chemical Co. will handle "Refrigerants and Motor Burn-Outs," while a representative from American Furnace Co. speaks on "Installation and Service of Home Air Conditioners."

Another general RSES business meeting is set for 4:10 to 5, and the banquet at the Francis Drake from 7 to 9 p.m. A dance will be held from 9 to 1.

Whirlpool Sales Rise, Net Earnings Drop

ST. JOSEPH, Mich.—Whirlpool Corp. reported sales of \$402,322,212 last year, an increase from the \$390,976,925 of 1956. Net earnings fell, however, to \$10,591,570 from the \$14,217,895 of two years ago. In 1957 this equalled \$1.61 a share as against \$2.20 the year before.



FULL COVERAGE

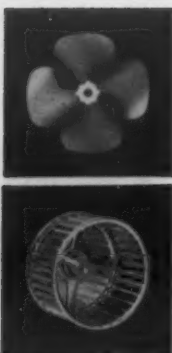
No matter which way the wind blows with your blower unit requirements—belt-driven, direct drive or radial-axial mixed flow—Torrington has the solution to your problems.

This means complete technical data and the proved-out performance rating on three lines of basic blower unit designs.

In addition to the standard direct drive units and the already famous VariBasic belt driven series, latest and most spectacular addition is the exclusive Radiax unit, combining the optimum performance characteristics of both radial and axial flow techniques.

The result is FULL COVERAGE—the best "problem insurance" you could have.

Talk to Torrington!



THE TORRINGTON MANUFACTURING COMPANY

TORRINGTON, CONNECTICUT • VAN NUYS, CALIFORNIA • OAKVILLE, ONTARIO

'Information Please'

Valves, Sight Glasses, Oxygen, Solvents Discussed at Canadian RSES Clinics

By Frank J. Versagi

TORONTO, Ont., Can.—Two "Information Please" clinics were held here during the 19th annual educational convention of the Canadian Refrigeration Service Engineers Society.

On the panel of experts for the two sessions were: Parker V. Phillips, service manager of Hussmann Refrigerator Co. (Canada); W. J. Brown, dis-

tributor sales manager of Linde Air Products (Canada); W. Blair, A. V. Roe Co.; Dale Bodine, director of educational services, Copeland Refrigeration Co.; E. T. Coles, assistant sales manager of Penn Controls, Ltd.; Harold Godbeer, Shipley Co. of Canada; and A. L. Pike, Universal Cooler Co., Ltd.

Additional Questions and Answers from these sessions will be published in a later issue of the NEWS.

Q. Must a special valve be used on air conditioning units when the thermostatic expansion valve is located in the air ducts where winter temperatures may reach 180° F. in winter?

Blair: Either the job should be pumped down in winter or a pressure limiting expansion valve used on it. If one of these two protective measures is not taken, there is danger of dumping all the refrigerant into the low side and having a liquid lock in the compressor at the spring start-up.

Q. What the the advantages and disadvantages of liquid line sight glasses?

Phillips: There is no doubt that a sight glass is advantageous. However, there is controversy over whether it should be placed upstream or downstream from the drier.

Most valve manufacturers advise locating it downstream from the drier since this allows one to ascertain that there is a full column of liquid at the valve. This location reduces the chance of replacing a valve when actually the drier is restricted.

On the other hand, this same downstream location makes it possible for an inexperienced serviceman to overcharge a unit if a restriction in the drier makes the glass indicate low liquid supply.

Q. Are special thermostatic expansion valves manufactured for Refrigerant-13?

Answer (from the floor): Several companies have made them, but usually on a custom basis. They are not yet manufactured as a standard item.

Q. Is the oxygen used in commercial welding and in hospital tents interchangeable? Can either one be used in each case?

Brown: The oxygen for both these purposes is charged at the

same stations. A little more care is used in painting hospital cylinders since they are handled by nurses in pretty white uniforms.

Incidentally, we are in the process of converting all threads on oxygen cylinder valves to the same as that used in the States. Called the North American Standard, this valve will make cylinders between the countries interchangeable.

As part of the conversion, the new valves are easier to operate—1¼ turns will fully open them.

Q. What is a suitable solvent

to clean out sludge and acids from compressor and windings in a sealed unit—without completely dismantling the system?

Bodine: If only the power head is involved, we would recommend placing a by-pass from the discharge to the suction side, use a pair of gauges and a good drier. Run the compressor, first having dumped the old oil, cleaned the compressor manually as well as possible and replaced the oil.

With R-12, run at about 20 p.s.i. suction and about 120 p.s.i. head. It may help to flush the motor compressor out with liquid R-12 before beginning the rest of the operation.

'Father of H-Bomb' Calls for All-Out \$40 Billion Shelter Building Program

DETROIT—Calling the home front "the weakest phase in our defense against atomic attack," Dr. Edward Teller, nuclear scientist and "father of the H-bomb," called for an all-out program of shelter building, in a talk before the Economic Club of Detroit.

Dr. Teller's blueprint for surviving an all-out nuclear attack includes:

1. Placing prime importance on safeguarding our retaliatory forces.
2. While realizing that the physical properties in industrial centers could not be saved, adequate shelter programs—at a cost of perhaps \$40 billion—might save the lives of most of the people.
3. Overcoming potential star-

vation and lack of resources by stockpiling food, tools, raw materials and, communication and transportation equipment in safe shelters.

Three types of shelters were suggested by Dr. Teller.

For protection of personnel and material against direct hits, only strongly built concrete shelters about 200 ft. under the ground would give protection.

For protection against fire and distant shocks, plus fall-out, cellars or subcellars with protected air supply would be necessary.

Against radiation fall-out alone, a basement shelter alone would suffice.

Dr. Teller said Americans had shied away from the horrible picture of an all-out attack.

Choose BOHN Refrigeration Units

Precision-designed and performance-proven to solve your refrigerating problems... efficiently... economically

LOW TEMPERATURE UNITS

All feature Bohn's unique, hermetically-sealed automatic defrost system... eliminates extra wiring, extra piping, costly control valves. All with grained aluminum cabinets, rust-proof fittings, life-lubricated motors.



MODEL LC Unit Cooler
For large walk-ins. 6000 to 24,000 BTU/hr. cap. at 10° T. D.



MODEL LM Mullion Le-Temp
For upright freezers. 1400 and 1900 BTU/hr. cap. at 10° T. D.



MODEL LR Unit Cooler
For reach-ins and small walk-ins. 1000 to 1900 BTU/hr. cap. at 10° T. D.

STANDARD COOLER UNITS

Compact units, all with practical built-in Bohn features, rust-proof fittings and life-lubricated motors, housed in long-life, grained aluminum cabinets. Simple to install, fully tested and warranted.



MODEL C
For reach-ins. 1000 to 3000 BTU/hr. capacity at 10° T. D.



MODEL U
For small applications. 850 to 1500 BTU/hr. capacity at 10° T. D.



MODEL UM Mullion Unit
For reach-ins and dough retarders. 1300 to 2300 BTU/hr. capacity at 10° T. D.



MODEL HR Half Round
For walk-in coolers. 2600 to 10,800 BTU/hr. capacity at 10° T. D.



MODEL UC Unit Cooler
For walk-in coolers. 2600 to 20,000 BTU/hr. capacity at 10° T. D.

MODEL D
For beverage boxes and back bars. 1300 to 2300 BTU/hr. capacity at 10° T. D.



Buy the known line... the BOHN line

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General Offices: Detroit 26, Michigan

Refrigeration and Air Conditioning Products • Special Heat Transfer Surfaces

Aluminum and Brass Corporation

Betz Division • Danville, Illinois



SEND FOR REPRINTS

Product Knowledge, Protective Maintenance, Trouble-Shooting, Adjustment, Repair of Electric Motors. Only 40¢ each.

For your copy, clip this ad and mail with name and address to: Air Conditioning & Refrigeration News, 450 W. Fort, Detroit 26, Mich.

Although It's Economical, Practical Now

Heat Pump Growth Linked to Public Acceptance Of Summer Cooling of Homes as Necessity

CHICAGO—Not only will the heat pump "meet the specification for the controlled climate of the future," but it represents a practical and desirable method of all-year-round air conditioning right now, William L. McGrath, chief engineer for Carrier Corp. told home builders here recently.

"True," he added, "climatic conditions and local power-fuel cost relationships will determine where it is best suited."

Showing the builders the winter-design temperature map of the United States reproduced here, McGrath asserted:

"In areas where the design

temperatures are plus 20 and above, there is little question about the justification of the heat pump. In many cases it will prove to have a very competitive first cost as compared to other methods of year-round air conditioning.

"In areas of design temperature 5° or 10° and above, a relatively modest amount of supplementary resistance heating is required. It is probably also true that the total heating cost in these areas is not high enough to represent a major consideration in the selection of a plant.

"In the area of design tem-

perature from -5° to 5°, a substantial amount of resistance heating is needed to supplement the heat pump with present day equipment.

"Here, the economies in a particular situation will depend upon the relationship of power and fuel costs and perhaps also by the extent to which the particular electrical utility has system capacity available for winter heating.

"Even in areas extending to -10° design temperature, the relative operating cost does not deteriorate too drastically. But, of course, the installed electrical demand will rise sharply be-

cause of the additional resistance heating required.

"On a local basis, the economics of the homeowner are, of course, directly affected by the cost of fuel as compared to the cost of electricity. In this connection you should pay attention to probable future costs as well as those existing today."

Looking to the future, McGrath pointed out that when summer cooling is accepted as a necessity, "then the heat pump becomes very sound and attractive indeed" because it will do both the heating and the cooling job.

McGrath asserted that the heat pump is not a competitive heating plant, per se, because of the first cost disadvantage.

By the same token, he added, it is not generally economic to deliberately oversize the plant beyond what is required for cooling in order to improve the

heating system performance.

"Roughly, a plant that will cool a given house will also heat it down to some temperature between 30 and 35° F.," he explained. "Below this point supplementary heat must be provided—conventionally in the form of resistance electric heating."

"It will nearly double the size of the plant to lower this break-even point from 35° to, say, 20°.

This cannot be justified easily. "Thus, to make the heat pump attractive to the buyer, it should be sized primarily for the cooling load."

Looking into the future a bit, McGrath argued that with summer cooling here to stay and with every home thus equipped, a substantial increase in energy demand for summer cooling can be foreseen.

"In view of the cost of providing distribution facilities, the future will see a strong trend toward the same form of energy for both heating and cooling," he predicts.

He further predicted that future equipment developments may be expected in the direction of reducing the requirement for supplementary heating without greatly penalizing the cost of the installation.

McGrath advised the builders that only a few precautions in the design of the house or the installation of equipment need be observed.

"A higher quantity of air is circulated than with a conventional heating system," he said. "This in general leads to a reduction of stratification.

"Recommendations as to proper registers and design practices are readily available.

"Because heating is accomplished with relatively low temperature air as compared to conventional heating plants, careful treatment of walls and exposed glass areas is desirable.

"Where the design temperature is below 10°, the use of double glass is preferable from a comfort standpoint. It also saves on operating costs.

"Good insulation practice should be followed.

"Special attention should be paid to duct system design particularly with respect to insulation, length of run, and temperature losses," he said.

Builder Ups Sales By Offering Year-Round Systems In New Homes

NEWARK, N. J.—Plymouth Custom Homes here has built its sales by offering air conditioning in newly-built houses, according to Alvin Ross, vice president.

"We are the first homebuilding organization in the state to offer lot owners one construction plan covering a complete shell package erected with a central system for year-round air conditioning the entire house," he said.

"Response has been far beyond our most optimistic expectations. Today air conditioning is as much a necessity as heating, and families building their own homes are wisely installing it."

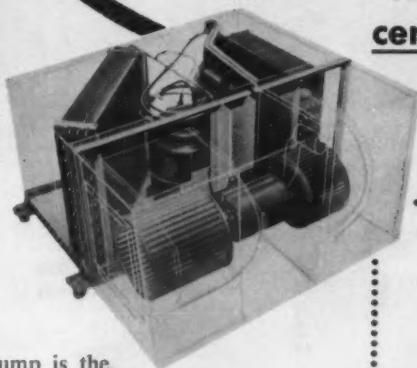
Even completely finished homes priced by the firm as low as \$8,995 can have air conditioning, Ross indicated.

WHAT?

clinch cooling jobs with
a **HEAT PUMP?**

YES . . . because

FEDDERS 3 HP Adaptomatic heat pump
gives your customers extra months of
comfort . . . yet costs less than many
central cooling systems!



- Completely pre-wired for heating and cooling
- No refrigerant piping
- No water lines
- Fits through 24 inch openings
- Pressurized air system permits installation anywhere

Fedders 3 HP Adaptomatic Heat Pump is the lowest priced unit of its kind — less than half the cost of most competitive heat pumps. Yet, it's completely equipped with automatic Main Control thermostat . . . low voltage control panel including relays . . . auxiliary thermostats mounted in duct section. Plus 15 KW booster heaters in a duct section specially designed for simple installation.

And the 3 HP Adaptomatic Heat Pump is 100% foolproof . . . completely pre-wired for year 'round operation. Adjustments can be made in minutes if heat loss calculations are inaccurate without opening cabinet or dismantling ductwork. And, as thousands of contractors have discovered, the Adaptomatic installs easier and faster than any other air conditioner in the world.

FEDDERS

More revolutionary features, more revolutionary products in 1958 than ever before.

Here's the unit that puts the entire central cooling market in your pocket. Offers your customers an unmatched combination of service, comfort, and low cost. What customer could resist bonus benefits like these:

- 1 Extra months of comfort—heating in early spring and late fall . . . at lower operating costs in many areas than regular central heating systems.
- 2 A complete reserve or replacement heating system — the most modern in the world. Adds up to \$1500 to resale value of any home.
- 3 Ready and completely equipped for year 'round use — once owner sees how its unmatched cleanliness cuts housecleaning chores and redecorating costs.

FEDDERS-QUIGAN CORP.—Dept. AC-324
Maspeth 78, New York

Gentlemen:
Please send me,
without obligation,
complete information
on the Fedders 3 HP
Adaptomatic
Heat Pump!

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FIRM NAME _____
ADDRESS _____
CITY _____ STATE _____

'Bracing Atmosphere'

Flexible Duct Carries Heat Pump Conditioned Air from Trailer to Twin, Workers Take Health Exam In Comfort

ASHEVILLE, N. C.—A self-contained heat pump cools and heats the new twin trailer unit used by Occupational Health Service here to conduct physical examinations of industrial employees in the Asheville area.

A flexible connecting duct carries either cool or warm air from the trailer containing the General Electric "Weathertron" heat pump to its companion unit. Air circulates at the rate of 2,000 c.f.m.

The medical department on wheels contains medical examining equipment for use in large scale health programs for industrial establishments. It is intended to supplement established industrial medical programs by providing facilities for periodic physical examinations of employees.

The trailer unit carries its own diesel generators to provide power for its electrical system and for the heat pump. It also carries its own complete sewage system.

A. Z. Price of Charlotte, N. C., engineered the installation of the 5-ton, air-cooled unit. The trailers were built by the Brown Truck & Trailer Mfg. Co. of Charlotte.

The heat pump will develop 86,800 B.t.u.h. at 0° F. ambient with the aid of a 13-kw. heating element.

Proposes Civic Fountain To Supply Water to Area Air Conditioning Units

DETROIT — A large civic fountain in the heart of downtown Detroit whose water would be used for the air conditioning systems of nearby office buildings and retail establishments has been proposed by a reader of the *Detroit News*.

Writing to the newspaper's "Public Letterbox," reader "L.S." put forward his idea as a public works project that would be both utilitarian and profitable. His complete idea calls for tearing down the old city hall, now replaced by a modern, skyscraping city-county building. In its place, he would build an underground garage, with the fountain on top.

The fountain would be attractive and a symbol of Michigan's "Water Wonderland," he argued.

By inviting surrounding buildings to connect their air conditioning systems to the fountain at a rate lower than they would otherwise have to pay, the income—with that of the garage—would help pay off the construction bonds, he added.

Synthetic Textile Plant To Be 70% Conditioned

LAURENS, S. C.—Construction of a multi-million dollar synthetic textile yarn plant by the L.O.F. Glass Fibers Co. of Toledo is expected to begin "within the year," according to company officials. The plant will be 70% air conditioned, it was stated.



TWIN-TRAILER unit of the Occupational Health Service, Asheville, N. C. contains medical examining equipment for use in large scale health programs for industrial establishments.

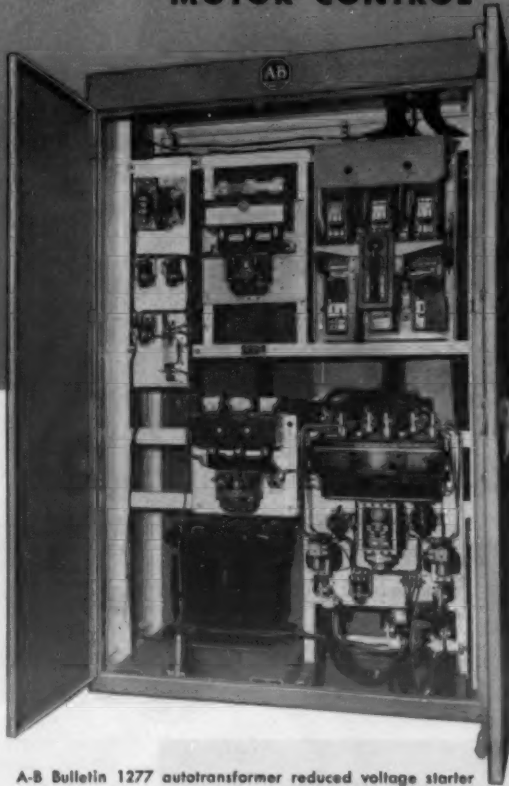


A 5-ton air-to-air General Electric Co. "Weathertron" WT66c heat pump is installed in the Asheville mobile health trailer. To the right is the metering and control panel of the self-contained power plant.

Alexandria Air Conditioning Dealer Opens for Business

ALEXANDRIA, La.—The Air heating, has opened for business Condition Appliance Corp., featuring air conditioning and St.

Modernized Canal-Randolph Bldg. uses ALLEN-BRADLEY MOTOR CONTROL



A-B Bulletin 1277 autotransformer reduced voltage starter with closed circuit transition meets power company requirements for acceleration without heavy current surges.

Consulting Engineers: Brooke & Chapois.
Air-Conditioning Contractors: Gallaher & Speck.
Electrical Contractors: Hultgren Electric Corp.
Managing Agent: Hogan and Farwell, Inc.



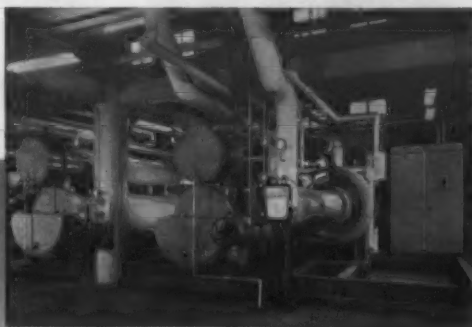
Canal-Randolph Building, Chicago, recently modernized, has installed a new air-conditioning system to provide up-to-date office space.

Where quality—not necessarily the lowest price—is the most important requirement, you'll find Allen-Bradley quality motor control in use.

The simple solenoid design—which only Allen-Bradley offers in all starters up through Size 7—has only one moving part. This assures millions of trouble free operations. There are no bearings to corrode and stick... no flexible jumpers to wear and break. Also, the double break, silver alloy contacts—standard throughout Allen-Bradley control—never need maintenance. They are always in perfect operating condition. This is why you can install Allen-Bradley control... and forget it.

Be sure to specify Allen-Bradley motor control by name... it's a decision you will never regret... the A-B trademark is your guarantee of years of reliable, trouble free service.

Allen-Bradley Co., 1313 S. First St., Milwaukee 4, Wis.
In Canada—Allen-Bradley Canada Ltd., Galt, Ont.



This air-conditioning system uses a total of five Trane units. Each of these 400-ton units is equipped with an A-B Bulletin 1277 starter to operate the 440 v compressor motor.



A-B Bulletin 712 combination starters are used to operate the auxiliary pump motors. These are listed in the A-B Handy Catalog. Send for your copy.



served than there was at opening of the initial show of WACIA in 1957, he said.

Stuart Giles, Bemco, Inc., N. Hollywood.

On Thursday, Frank M. Neal of Minneapolis-Honeywell Regulator Co. will moderate a symposium on "School House Environmental Control." Individual subjects covered will be:

"Steam and Hot Water Systems," C. D. Walz, consulting engineer, Los Angeles. "Radiant Heating Systems," Alvin L. Otum, Year-Round Comfort, Inc., Los Angeles; "Heating, Ventilating and Cooling Systems," Russel C. Taylor, American Air Filter, Inc.; "Central Air Systems," Wallace L. Donley, consulting engineer, Los Angeles; "Unitized Direct Fired Systems," speaker not yet announced; "As the Architect Sees It," Arthur Rendon, A.I.A., Kistner, Wright & Wright, Los Angeles.

In the evening session on May 8, Prof. Norman Sharpe of California State Polytechnic college will moderate a symposium on "Air Cleaning with Reference to Particle Size, Filter Testing and Smog Control."

Individual subjects to be included in this session will be covered by a panel consisting of Sydney F. Duncan, Farr Co., Los Angeles; H. L. Barnebey, Barnebey-Cheney Co., Columbus, Ohio; J. S. Earhart, Preferred Equipment, Inc., Los Angeles; James W. May, American Air Filter Co., Louisville, Ky.; Paul W. Aitkenhead, Electro-Air Cleaner Co., Inc., McKees Rocks, Pa.

On Friday, May 9, Leo Hungerford of Utility Appliance Corp. in Los Angeles will moderate a symposium on "Air Conditioning Existing Buildings." Various aspects of this major industry problem will be covered in sessions as follows:

"The Owners' Problems," John Williams, R. A. Rowan Co., Los Angeles; "The Mechanical Engineers' Problems," Cary B. Gamble, consulting engineer, New Orleans; "The Structural Engineers' Problems," speaker to be selected; "The Contractors' Problems," Henry Ulovec, Mehring & Hanson Co., Los Angeles; "The Architects' Problems," speaker to be announced.

General technical sessions that evening will be under the chairmanship of David Reznick, Air Fan Engineering Co., Los Angeles, and will include:

"High Temperature Hot Water Systems," Arthur J. Hess, Hess, Greiner & Pollard, Heat & Power Equipment Co., Los Angeles; "Water Conservation," Ralph Westcott, consulting engineer, Pasadena; "Air Conditioning Existing Residences," George Frymeyer, Carrier Corp., Monrovia, Calif.; "Residential Heat Pumps," Jim Kercheval, General Air Conditioning Corp., Los Angeles.

'Market Refrigeration'

Final sessions on Saturday, May 10, will include a panel discussion on "Market Refrigeration." Peter H. Askew of Thermal Products, Inc. will

serve as a moderator of a panel of four experts. Panel members have not yet been selected.

A concurrent session on "Codes and Standards" will be moderated by Herbert B. Nottage, Lockheed Aircraft, Inc., Burbank, Calif.

According to Fred J. Tabery, exhibit manager, the "buying trend toward the West" and the proven market potential for this particular type of equipment in the 11 western states has created a great deal of interest in the exhibit. Already about 30% more space has been re-

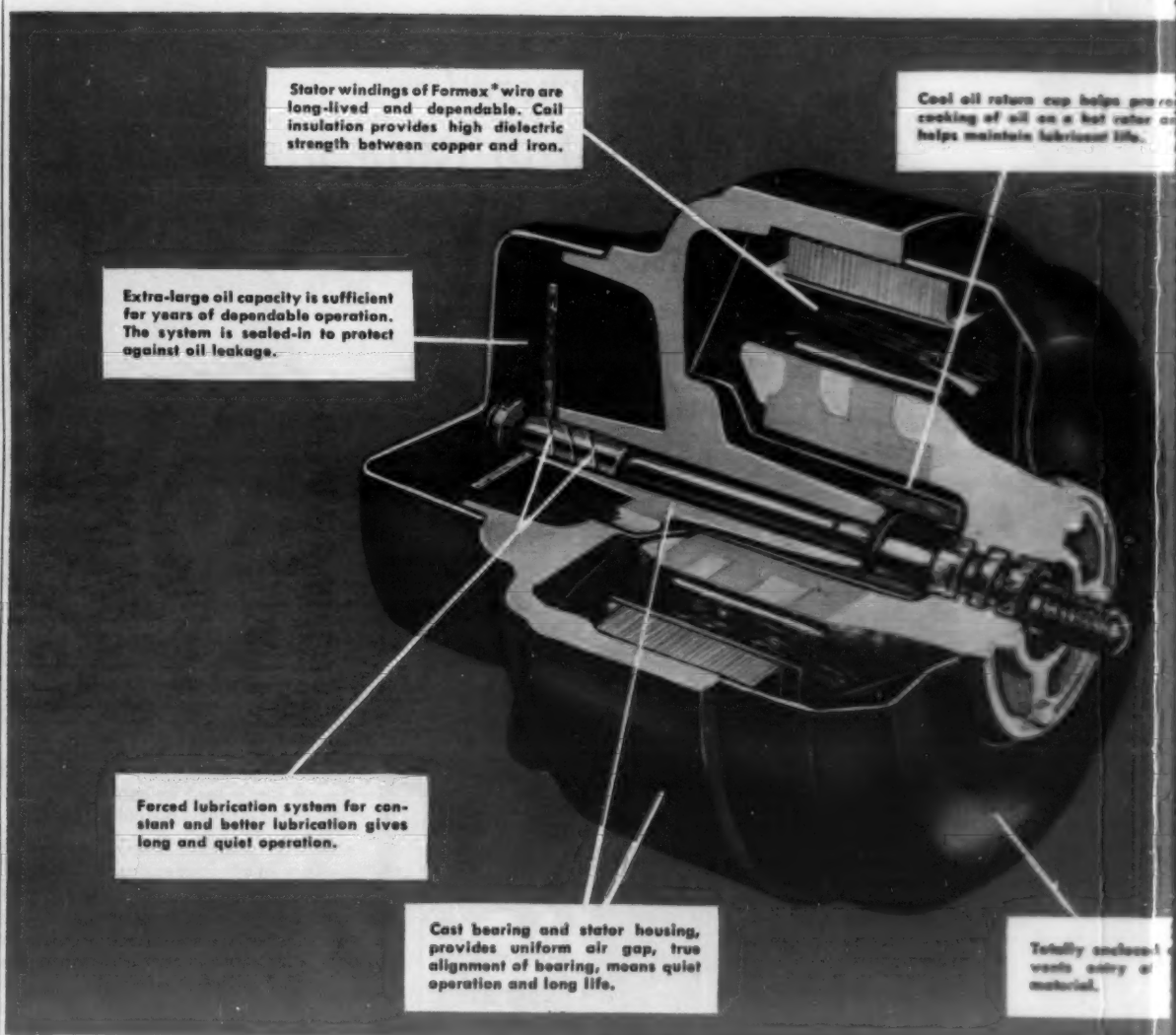
After this year the show will be held biannually falling in alternate years with the national shows in the industry.

GREENSBORO, N. C. — Climate Supply Co. here has been granted a state charter to deal in air conditioning equipment. Authorized capital stock is 1,000 shares, no par value. Incorporators: William M. York, C. T. Boyd, and A. W. Flynn, Jr., all of Greensboro.

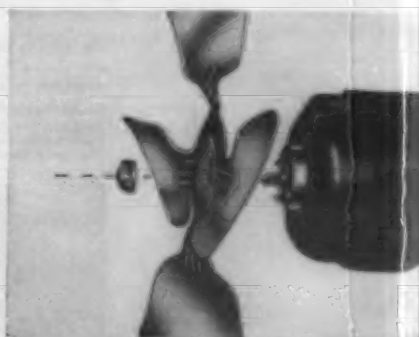
WICHITA, Kan.—Kansas Gas & Electric Co. has announced its future space heating promotion will be conducted July 5 through Sept. 15 this year.

"Electric space heating will be aggressively sold at every opportunity," the utility told dealers. "This remains the number 1 electric service that will 'Break-Thru' the strong grip of competition to open a market for this modern heating service and fill the open spaces in our system load curve."

THE ULTIMATE IN F



STORAGE FOR TRIPLED OIL SUPPLY is provided in a new design of oil storage wicks. New oil has an oxidation life several times that of best oil previously used.



BUILT-IN-HUB AND SPECIAL SHAFT MOUNTING permit the use of simple, hubless, low-cost fan motors. This saves money on motor and fan combination.

Schedule Program for Western Show--

(Concluded from Page 1)

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Kansas Utility To Hold Space Heating, Heat Pump Promotion July 5-Sept. 15

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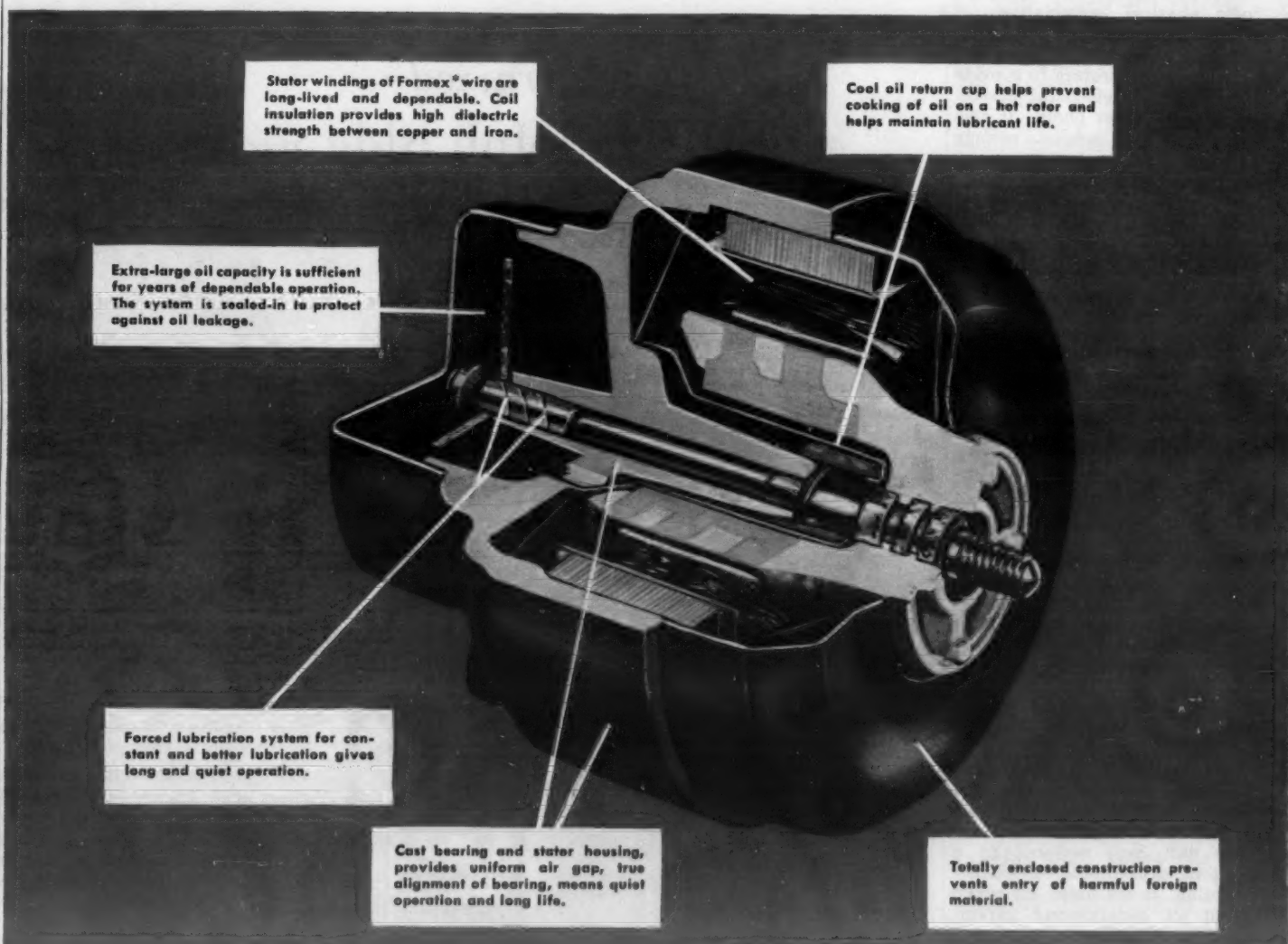
"Electric space heating will be aggressively sold at every opportunity," the utility told dealers. "This remains the number 1 electric service that will 'Break-Thru' the strong grip of competition to open a market for this modern heating service and fill the open spaces in our system load curve."

Where a home is to be completely heated and air conditioned, we will sell the use of the heat pump, the utility advised dealers. Where the home will not be air conditioned or will use window air conditioners, we will sell the use of panels, baseboard units, or ceiling cable for heating.

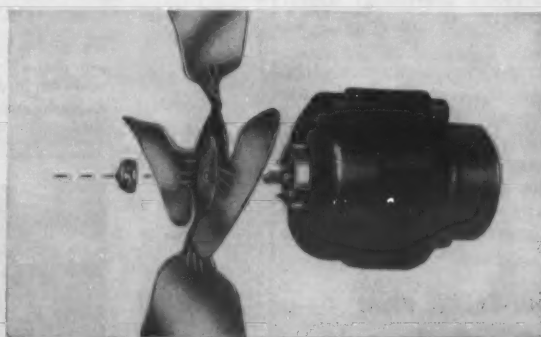
KG&E said it expects to arrange a two-day electric heating seminar for architects, engineers, and others interested in this service.

From General Electric . . .

THE ULTIMATE IN FAN



STORAGE FOR TRIPLED OIL SUPPLY is provided in a new design of oil storage wicks. New oil has an oxidation life several times that of best oil previously used.



BUILT-IN-HUB AND SPECIAL SHAFT MOUNTING THREADS permit the use of simple, hubless, low-cost fans—saves you money on motor and fan combination.

Has Serviceman In Mind

Designs '58 Room Units 'To Permit More Installations, Profits'

PHILADELPHIA — Philco Corp.'s installation kits for 1958 room air conditioners "were designed with the serviceman in mind and permit more installations and profits per day," according to Jack Cherry, general manager of air conditioning.

In addition, he said, the file drawer construction of "Compact" models enables the serviceman to do 90% of service work without removing the chassis from the cabinet in which it is installed.

Philco also offers the service-

man two accessory kits for the company's exclusive "Ionitron" negative ion generator. One is for "Bantam" 1-hp. models which is installed on the outside of the cabinet, and the other is for Compact models and is installed inside the cabinet.

The simplified installation kits for Philco air conditioners make it possible to install Compact models within 35 to 45 minutes and the Bantam models within 15 to 20 minutes by experienced servicemen, Cherry said.

A new counterbalanced design

of mounting for Compact models "eliminates the time consuming and often difficult work of attaching outside angle brackets," it was stated. "The new mounting does not require the outside support even when the air conditioner is mounted flush to the inside window frame."

"The outside angle brackets are replaced by the use of adjustable sections on top of Philco Compact room air conditioners which lock the unit into the window frame."

"The Compact models are file-

drawer construction and the chassis can be slid in and out of its wrapper cabinet in the same manner as a file cabinet drawer. Ninety per cent of service work can be done by sliding the chassis part way out. The chassis also can be easily removed for compressor work."

Philco's Bantam 1-hp. room air conditioners of the "take-home" type are available with a standard installation kit or an accessory kit which enables the serviceman to make an all inside mounting for either double-hung or casement windows.

Another service aid is the Compact transformer kit used

to change 230-volt Compact room air conditioners to 208-volt units. The Compact series also has 230/208-volt models as standard equipment. The transformer kit may be quickly installed, according to Philco.

St. Louis Distributors Room Unit Sales Fall

ST. LOUIS—Trend of air conditioner shipments by certain distributors to their dealers in the territory served by Union Electric Co. indicated 19,852 were sold last year compared with 22,891 the preceding year. This is a 13.3% drop.

With 35 each $\frac{3}{4}$ and under and 1-hp. and over air conditioners shipped in December for a total of 70, a marked fall-off of 64.3% was registered from November and a 22.3% dip from December of 1956. Freezer shipments also slid 12.1% in 1957 compared with 1956 and refrigerators were off 15.3% for the same period.

Dehumidifiers boomed 88.5% last year, however, with sales of 1,576 as against the 836 shipped in 1956.

Kansas Utility Reports Central System Sales Rise 26% In '57 over '56

WICHITA, Kan.—Central air conditioner sales by reporting dealers increased 26.5% in 1957 over 1956 in the territory served by Kansas Gas & Electric Co., the utility reported.

There were 614 units sold in all 1956 and 777 last year, it was noted. There were 29 central units sold last December and 17 in November while only four were sold in December, 1956.

Room air conditioner sales in 1957 totaled 7,163, down 7.7% from the previous year's total of 7,760.

Washington Room Unit Sales Total 691 In Jan.

WASHINGTON, D. C.—Retail room air conditioner sales of units through 1 hp. in this metropolitan area totaled 691 in January, a rise from the 586 sold in the same 1956 month.

Electric Institute of Washington reported room air conditioners were among only five major appliances which climbed in retail sales this January.

Select 'Custom Thinline' Air Conditioner To Show

BROOKLYN — Jury for the Brooklyn Museum Design for the 1958 Home Show, running to April 27, selected General Electric Co.'s "Custom Thinline" room air conditioner as the only one chosen for the show, G-E's Room Air Conditioner Dept. announced.

Thinking of —

- changing territories
- expanding your territory
- taking on new lines—

Check the
CLASSIFIED ADS

Your opportunity may
be there.

MOTOR DEPENDABILITY

For use when customer satisfaction with your products may depend on extra dependability of the fan motor

The best testimony to the quality of this motor is that it has stood the test of time—for 21 years it has set the standard for dependability. General Electric now offers a modified version that lasts even longer, provides extra-long service. Here's the story:

Extra-long-life models (both 4- and 6-pole) have been developed for applications such as home freezer systems and condenser cooling fans where low fan and air noise, in addition to extra dependability, is desirable. The extra-long-life features of this General Electric motor include a new oil storage wick system with tripled oil capacity, and a new oil with oxidation life several times that of the best oil previously used.

Quality construction features, such as General Electric's oil retention system and one piece, cast-iron frame help make these fan motors quiet and more dependable in operation.

Combine these construction features with extra safety factors and increased oil supply and you see why you'll enjoy greater dependability and customer satisfaction when you use the General Electric fan motor with its projected extra-long life. It's available at only a modest price

increase over the standard G-E shaded-pole fan motor of this size.

An example of the long life and dependability of a General Electric unit-bearing fan motor is the story of the motor pictured below. In 1937 that motor was taken from the production line and placed on life tests in the General Electric Laboratory. Nineteen years, six months, and two days later it failed. Knowledge gained from this and many other life tests have all contributed to General Electric's progress in making motors better and better.



Like more information on this G-E fan motor? Fill out and mail the coupon below, or contact your nearby G-E Apparatus Sales Office.

*Registered trademark of General Electric Co.

Progress Is Our Most Important Product

GENERAL  ELECTRIC

FOR A COPY OF THE FREE BULLETIN, GEA-6134, covering 1½ watts through ½ hp ratings, mail this coupon to Section A632-13, General Electric Company, Schenectady 5, N. Y.

NAME _____ TITLE _____
ADDRESS _____
COMPANY _____
CITY _____ STATE _____

Inside Dope

By GEORGE
F. TAUBENECK

(Concluded from Page 1, Col. 1)

of the leading team sent in a new quarterback with instructions: "Whatever you do, DON'T PASS! Stay on the ground!"

On the next play the quarterback handed off to his fullback, who broke through and wasn't stopped until he hit the opposing team's eight-yard line.

With seconds to go the quarterback, unable to resist the temptation to try for another touchdown, called for a pass.

A fast defensive back on the rival team speared the ball and, with a clear field ahead, legged it for the goal line.

From out of nowhere came the passer. With a desperation tackle he nailed the runner from behind. End of game.

As the players filed off the field the losing coach sadly remarked to the winning mentor: "It beats me how your substitute quarterback caught up with my fastest man."

Cracked the victorious coach: "Your boy was running for a touchdown. Mine was running for his life!"

Frank Pond on Ice

Rudy Berg tells "Dope" that Frank Pond helped pioneer intercollegiate hockey at the University of Minnesota. A stalwart of the commercial refrigeration industry, Frank is the Copeland wholesaler in Minneapolis.

His firm has branches in St. Paul, Duluth, Fargo, and Billings, Montana.

Intercollegiate hockey was born at the Minnesota university in the winter of 1921. After two years of inter-fraternity tilts, and an informal game with

Hamline, Frank and a classmate approached the Gophers' athletic director (the late L. J. "Doc" Cooke) to obtain official recognition for hockey as a varsity sport.

"Who'd you ever beat?" Doc asked.

The only collegiate game Pond's team had played that winter was with Hamline. Frank and his teammates were victorious, 4 to 3, in a contest played on a makeshift outdoor rink. So Frank's answer to Doc's query—"Who'd you beat?"—was: "Everyone we've played."

That satisfied Cooke, and hockey got official sanction. Following week the Gophers moved indoors to the St. Paul Coliseum rink, where they whipped St. Thomas to wind up the "season" undefeated.

In those days, Pond remembers, six men would play nearly the whole game.

After winning seven of 10

games the following year, the coachless Pond team claimed the Big Ten crown. Michigan, the only other conference team represented, refused to play the Gophers.

In the next two years, Minnesota beat both Wolverines and Badgers (Wisconsin), and Frank Pond was the coach.

Fullback Bob Hoelscher

And there's another collegiate athletic celebrity in our midst: Bob Hoelscher, who now is expeditor at the Detroit plant of Square D Co.

During his sophomore year (1952) at Mississippi State college, Bob earned All-Southeastern conference fullback honors.

It was in that year that Bob got the biggest thrill of his collegiate grid career: he ran 85 yards on a kickoff return for the touchdown. This spectacular feat put his team ahead

of arch-rival Mississippi, 13-7. Mississippi State eventually lost the game, 21-13, but the loss couldn't kill Bob's big thrill.

Hoelscher played four years of varsity ball (the National Collegiate Athletic Association hadn't yet returned to the three-year varsity eligibility rule).

Some of his teammates of those years later became well known in "pro" football—Joe Fortunato, Art Davis, and Jackie Parker, who was an All-American quarterback while with Mississippi State.

And his coaches during that four-year period are names familiar to all football fans everywhere—Murray Warmath and Darrell Royal.

After getting a bachelor of science degree in May, 1955, Bob joined Square D.

Hearts and Flowers

Herbert Leggett writes in *Arizona Progress*:

"Well, we finally became a Man of Distinction. We despaired of ever making it, but a few weeks ago we hit the jackpot. We had a heart attack.

"Joining the Cardiac Club seems to us worthy of mention, like making a hole-in-one or parachuting from a disabled airplane, but the doctors have remained calm. They now consider these things merely routine, like breaking your neck.

"Anyway it was an unusual experience. We finally got to ride in an ambulance and have since had the most tiresome rest of our life.

"We were more bored than sick but it scared the bejabbers out of our family and friends. Consequently they were so solicitous it frightened us. Some even broke down and vouchsafed compliments normally deferred until rigor mortis sets in.

"However, we can't quite go along with those who declaim cheerfully, and we quote, this is the best thing that ever happened to you. We could name some nicer things.

"The assumption is that we had been working too hard, burning the candle at both ends, chasing blondes, etc. The truth is we have not chased blondes for many years. Not more than a block anyway. The same goes for brunettes, redheads, and variegated.

"Back on our feet part-time, we have given up smoking, speech-making, and mountain climbing. The most gratifying by-product is that we can now eschew cocktail parties and similar ordeals, thus being as anti-social as our real nature dictates.

"Temporarily we win most conjugal arguments by clutching pathetically at our breast pocket but doubt that this happy state of affairs will prevail indefinitely."

Operating Costs of Residential Air Conditioning and What This Means to Dealers and Installers. By R. A. Gonzales—25¢ each.

Get your copy

Mail this ad with your name and address to: Air Conditioning & Refrigeration News, 450 W. Fort St., Detroit 26, Mich.

Fast defrost! Economical operation!

LARKIN ELECTRIC DEFROST LOW TEMPERATURE HUMI-TEMP

Here's the unit for the cooling jobs below 32°F. The automatic electric defrost keeps the coil free of ice without overheating—enables the evaporator to function at greater efficiency and lower operating costs. Independent defrosting and refrigeration circuits give dependable, trouble-free service.

Complete Defrost

Sealed tubular heaters are integral parts of the coil. They defrost by radiation, conduction, and convection—work fast so the coil can work best.

Fully Adjustable

The defrosting cycle is controlled by a time clock. It can be adjusted for any number of defrosts a day and for any length of time from 2 to 55 minutes.

At the end of the defrost cycle, an adjustable delay period allows the compressor to start before the fans to prevent a blast of warm moist air from entering the refrigerated area.

Investigate the many advantages of the LARKIN Electric Defrost Low Temperature Humi-Temp.

For complete data, see your wholesaler or write for bulletin number 1055.



LARKIN COILS INC.
519 MEMORIAL DRIVE, S.E., ATLANTA, GEORGIA

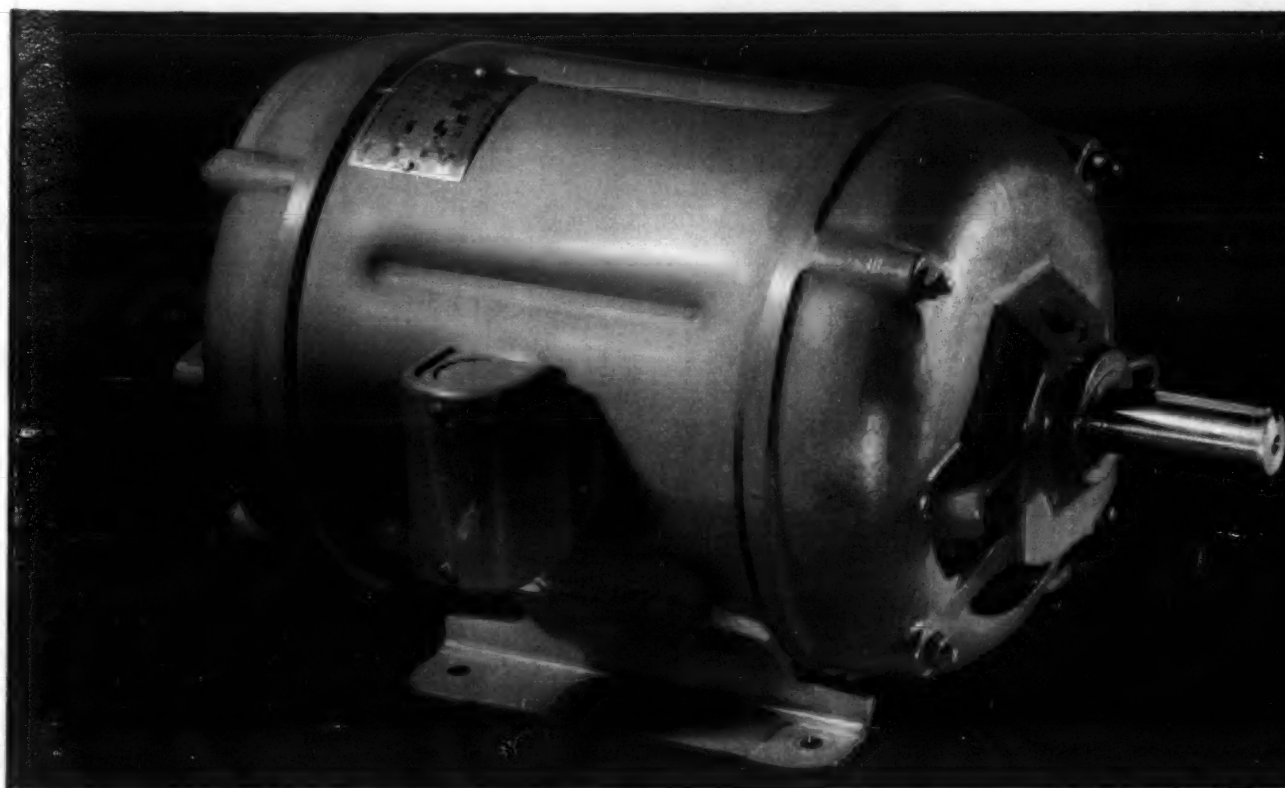
REASONS WHY YOU'LL BE GLAD YOU BOUGHT IT

- Patented Larkin Cross-Fin Coil—aluminum fins and staggered tubing.
- Heating elements easily removed and installed through side access panel.
- Drain pan has conductive rubber electrical heating pad which assures complete drainage.
- Standard permanently lubricated heavy-duty motors designed for low temperature applications—resilient mounting on adjustable slotted base.
- Heat exchanger provided as standard equipment.
- Heavy gauge, die-stamped aluminum case, finished in Larkin Blue.
- UL approved.

BASIC RATINGS

Model	Capacity Btu/hr @ 10° TD F	Total Surface Area	Cfm	DEFROST DATA	
				Coil Heater Watts	Drain Heater Watts
ELT-26	2600	69	800	600	155
ELT-32	3200	79	1000	900	155
ELT-42	4200	98	1400	1080	230
ELT-52	5200	131	1550	1440	285
ELT-65	6500	150	1700	1920	285
ELT-82	8200	201	2200	1920	285
ELT-104	10400	226	2800	2880	400
ELT-130	13000	301	3200	3840	510
ELT-160	16000	401	4400	3840	510
ELT-240	24000	501	5600	4800	620

Got a Real Tough Starting Problem ?



Single-phase Type RA 1/2 to 15 hp.

Wagner Repulsion-Start Induction Motors start heavy loads with low current

The Wagner Type RA is the work-horse of the single-phase motor field. It combines high starting torque for quick, easy starts with low starting current and minimum light flicker. It has a constant high operating speed, even under overload, and a flat efficiency curve over a wide operating range.

You practically eliminate service problems when you power tough single-phase applications with Wagner RA Motors. They have unmatched ability to start high inertia or heavy friction loads repeatedly and they give many years of unfailing service.

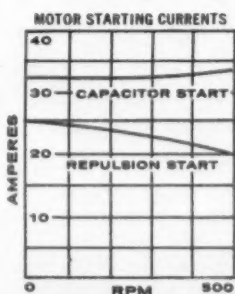
Let a Wagner Sales Engineer show you how these motors can be applied to your needs. Call the nearest branch office or write for Bulletin MU-220.

Wagner Electric Corporation

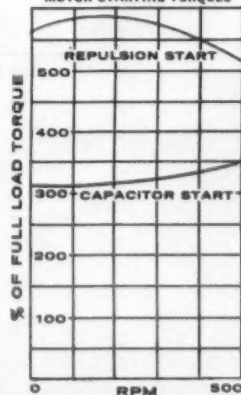
6400 Plymouth Ave., St. Louis 14, Mo.

BRANCHES AND DISTRIBUTORS IN ALL PRINCIPAL CITIES

GET MORE STARTING TORQUE WITH THE SAME HORSEPOWER



MOTOR STARTING TORQUES



ONE HP, 1750 RPM, 60 CYCLES, 230 VOLTS

Integral Ratings, 1-5 hp are available in the latest NEMA Frame Sizes

H. P.	OLD FRAME SIZE	PRESENT FRAME SIZE
1	203	182
1 1/2	204	184
2	224	213
3	225	215
5	254	254U

4 pole (1750 RPM, 60 cycle and 1450 RPM, 50 cycle) ratings are interchangeable in mounting dimensions with capacitor start motors of the same ratings.

Got a Normal Starting Application?



Single-phase
Type RK
1/4 through 5 hp.

WAGNER CAPACITOR-START MOTORS provide dependable starts... long troublefree life

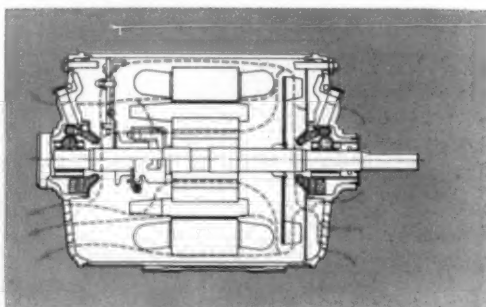
Here's the single-phase general purpose motor that gives more horsepower with less bulk—is rugged enough to permit direct mounting, compact enough to fit in tight spots. Available with sleeve or ball bearings—with rigid bases or with resilient mountings for exceptionally quiet operation.

ALL-ANGLE OPERATION

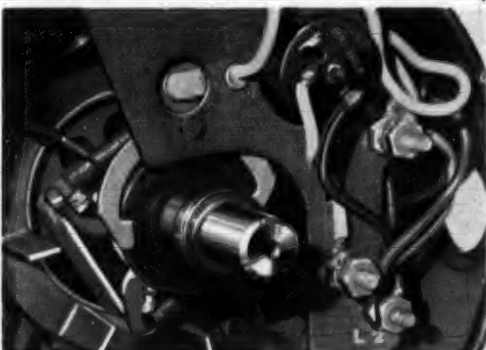
The sleeve bearing design in fractional hp ratings, has a positive lubrication system that permits operation in any position. All angle mounting can mean important savings in initial costs to manufacturers—can help the design engineer in a tight spot. You can get these motors from leading motor distributors in your community and from Wagner Sales Offices in 32 principal cities. Your Wagner Sales Engineer will be glad to help you select the right motor for your application. Wagner Bulletin MU-217 gives full details.

Wagner Electric Corporation

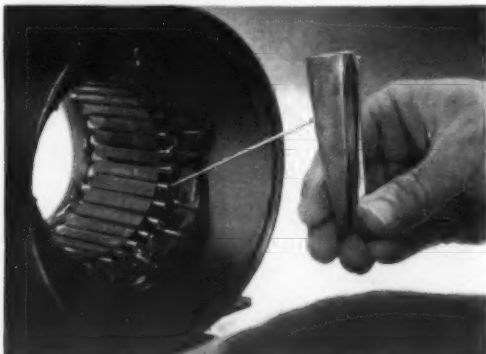
6400 Plymouth Ave., St. Louis 14, Mo.
BRANCHES AND DISTRIBUTORS IN ALL PRINCIPAL CITIES



EFFICIENT COOLING SYSTEM—The improved ventilating system used in these motors directs a large volume of air through the motor to effectively reduce temperatures and add to motor life. Cross section above indicates direction of air flow.



QUICK BREAK SWITCH—The starting winding and capacitor are disconnected from the line by this Wagner Switch—test-proved to make more than a million makes and breaks... the equivalent of two starts per hour for 50 years.



MYLAR® INSULATION—Mylar-paper laminated slot insulation gives top protection against moisture, adds thermal stability, to give more application versatility and longer life when unexpected overloads occur.

*DuPont Trademark

WAGNER "48" SPLIT PHASE MOTORS... 1/6, 1/4, 1/3 hp.



for low
starting
torque
requirements

If you need a small fractional horsepower motor for use on fans and blowers or on a wide variety of easy-to-start machines and appliances, you can't beat the Wagner "48" Type RB Motor. It offers all the advantages of the Type RK described above, with the exception of high torque capacitor starting. This smaller, lighter, limited use motor can solve many application problems economically.

WM58-6

Air Conditioning

Receives 'Overu

Tampa Clin Buyers 'Do

TAMPA, Fla. to ease growing rapidly expanding ing industry in St. Petersburg with overwhelming was reported her

The effort took educational clinic sellers and buyer tioning equipment intelligent job.

Explain How To What They Sh

The clinics, sta ber and still conti to teach air con tractors and eng methods of apply in this semi-tr and how to figur same time, they a show architects engineers what a tion costs.

Hundreds have the bi-weekly ev where tens were have had to be tu lack of space.

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"A dealer does underprice a job. tice is usually a dealer's part thr knowledge of the tion.

"Likewise, the not purposely mis fication."

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MARVIN L. "PERC
FACTORY DIST

CYCLO-FREE
6318 Cambridge, M
West 9-

Receives 'Overwhelming' Response

Tampa Clinic Helps Air Conditioning Equipment Sellers, Buyers 'Do More Intelligent Job'; Tells How To Apply

TAMPA, Fla.—A major effort to ease growing pains in the rapidly expanding air conditioning industry in the Tampa-St. Petersburg area has met with overwhelming response, it was reported here.

The effort took the form of an educational clinic to help both sellers and buyers of air conditioning equipment do a more intelligent job.

Explain How To Figure Costs, What They Should Be

The clinics, started last October and still continuing, attempt to teach air conditioning contractors and engineers correct methods of applying equipment in this semi-tropical climate and how to figure costs. At the same time, they are intended to show architects and consulting engineers what a good installation costs.

Hundreds have turned out for the bi-weekly evening sessions where tens were expected. More have had to be turned away for lack of space.

Sponsored by the Tampa Electric Co. and the Florida Power Corp., the clinics are conducted by area representatives of the Trane Co. Since the project started, however, other air conditioning equipment manufacturers have offered to join in the program.

Behind the effort are Gilbert Leach, air conditioning manager for the Tampa Electric Co., Karl Hickman, air conditioning manager of the Florida Power Corp., A. J. L. Moritz, Jr., and Lamar King of the Trane Co.

Want To Raise Level Of Uses, Sales

Their reasoning in setting up the clinics, according to Moritz, was that by familiarizing all elements of the business with the general problems confronting the various groups in the air conditioning field, it would raise the general level of air conditioning application and sales.

"It certainly stands to reason," Moritz declared, "that if those representing air conditioning firms would all use correct methods of applying equipment in a given area, at least cost figures on such applications would level more or less the same—possibly helping to eliminate price cutting, wrong applications, and bad jobs.

"A dealer does not purposely underprice a job. Such a practice is usually an error on the dealer's part through lack of knowledge of the given application.

"Likewise, the engineer does not purposely misapply a specification."

To find out what subjects for discussion air conditioning people would be most interested in, the two utilities circulated questionnaires to air conditioning contractors, architects, and engineers in their respective territories in this area.

Build Clinic on 13 Subjects

They offered 19 proposed subjects for discussion. From results of the questionnaire, they selected the 13 most popular and built the clinic on them.

The questionnaire also gave the planners important data on how often and on what nights people would be willing to attend the free evening sessions. Sessions are being held alter-

nately in Tampa and St. Petersburg.

Some 150 persons returned the questionnaire. From the results it was learned that greatest interest lay in heat pumps, cooling load estimating, air conditioning compressors and accessories, and air handling requirements and how it affects residential units. Least interest was shown in advertising and point of sale merchandising.

"We believed if we could get about 80 or 90 to attend each of the clinic sessions," Moritz recalled, "we would have something.

"But 128 people attended the first session. For the second session, 227 people came. At the

third session, 295 were accommodated and 35 more were turned away for lack of space."

Since then the sessions have averaged between 250 and 300.

Moritz pointed out that consulting engineers and architects comprise about 30% of the audience, and those directly connected with servicing and installing air conditioning equipment another 25%. The remainder are sales, management, and engineering firms from various area contracting firms.

What Is Covered

Refrigeration cycle was covered in the opening clinic Oct. 28 in Tampa. Refrigeration piping was the subject Nov. 5 in St. Petersburg. Refrigeration controls came up Nov. 20, air conditioning compressors and accessories Dec. 3, cooling load estimating Dec. 17, psychrometric chart Jan. 7, heat pump Jan. 21. Heat pump sizing and applica-

tion was covered Feb. 4, equipment selection Feb. 18, and sizing of ductwork and air-handling requirements March 4, and installation and startup of self-contained units March 18.

Still to come are trouble diagnosis and service and maintenance contracts April 1, and retail finance plans and advertising April 15.

Pleased with the results attained so far and the strong desire shown by all for more basic information about air conditioning, Moritz commented:

"I hope the entire industry sees fit to carry on additional activity throughout the country because I feel such activity will go a long way toward clearing up the rat race in which air conditioning dealers and contractors find themselves. The mysteries, misconceptions, misapplications, and disagreements of correct and proper air conditioning installations are causing most of the present confusion."

6 different ways to increase profits with PERFECTION AIR CONDITIONERS

There's more profit for you, Mr. Dealer, when you sell and install Perfection Air Conditioning equipment. There are more features to sell—features that mean economy and comfort for your customers. And the line is complete—6 types. Where beauty is required, you find it in Perfection units.

1 TUCKAWAY SELF-CONTAINED HEAT PUMPS

Not just reverse cycle air conditioners—completely self-contained units designed and developed by Perfection as heat pumps in 2, 3½, 5 hp.

2 SILHOUETTE WINDOW AIR CONDITIONERS

Beautiful, economical thin line models in ¾ through 2 hp.

3 SILHOUETTE HEAT PUMPS

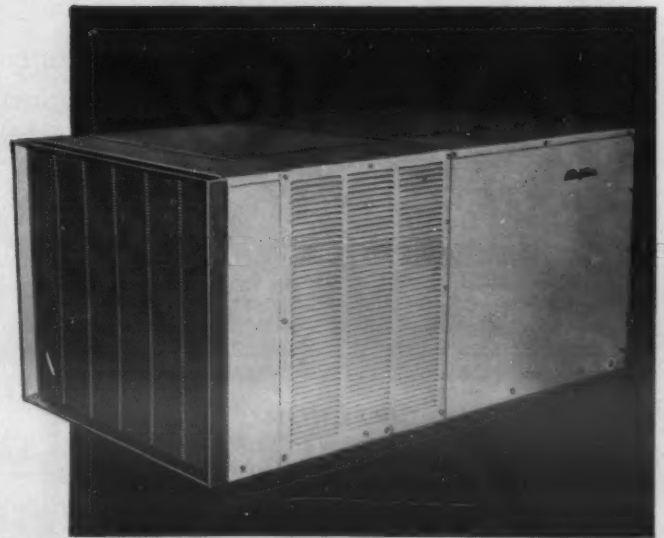
Window units in 1, 1½, 2 hp.

4 RESIDENTIAL REMOTE AIR CONDITIONERS

Air-cooled for easier and more economical installation in any type home. Available in 2, 3, 5 hp.

5 TUCKAWAY SELF-CONTAINED AIR CONDITIONING UNITS

Air-cooled, in 2, 3, 5 hp., these Perfection units can be suspended from the ceiling, tucked-away in attic, basement, transom or crawl space.



MODEL PAS-31-AH AIR-COOLED TUCKAWAY HEAT PUMP

6 COMPLETE COMMERCIAL LINE

Air-cooled units range up to 20 hp.—water-cooled package units up to 40 hp. Silent operation makes these Perfection units ideal for any commercial use.

There are a few wholesaler and dealer territories open. If you want "6 different ways to increase profits" see your Perfection Distributor or write, wire or phone Dept. N-34, Perfection Industries, Cleveland 10, Ohio.

Perfection DIVISION OF HUPP
GUARANTEED COMFORT SINCE 1888

Redmond
MICROMOTORS
One of largest stocks
in the world!
MARVIN L. "FERGIE" FERGESTAD
FACTORY DISTRIBUTOR
CYCLO-FREEZE CORP.
6318 Cambridge, Mpls. 16, Minn.
West 9-6794

See next week's NEWS for the most beautiful and complete heating and cooling unit available—it's Perfection's Regulaire.

Offshore Oil Drilling Barge Finds High Velocity Conditioning Economical

Air Distributed by Attenuator Boxes

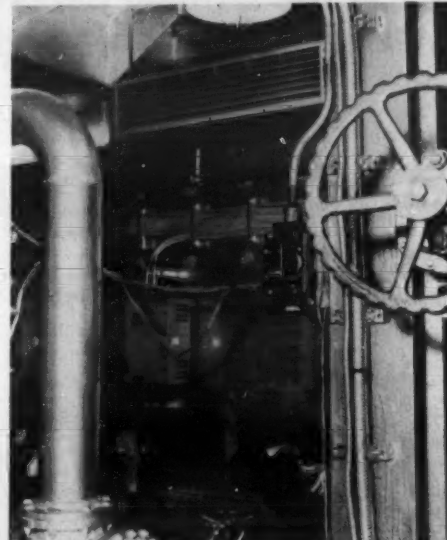
MOBILE, Ala.—Each new oil rig built for offshore drilling has been an improvement over its predecessor, according to Henry Dunlap, assistant air conditioning engineer, Alabama Dry Dock & Shipbuilding Co. The latest improvement is high velocity air conditioning, he said.

"When we received the contract to build the coral drilling barge, 'Mr. Arthur,' the air conditioning system first considered was to consist of a central plant for heating or cooling the primary air delivered to room units by a duct system.

"Room temperature was to be controlled by passing the prim-



ROUND Anemostat 100% induction air diffusers in ceiling of lounge.



CONDITIONED air is distributed in this machine room through a straight-line diffuser mounted horizontally on the wall.

You can count on
HIGHER PROFITS

WITH

Curtis

AIR CONDITIONERS

HERE'S WHY...

MAXIMUM DEPENDABILITY

Each CURTIS unit is backed by 104 years of engineering and manufacturing experience... one of many reasons why CURTIS air conditioning equipment operates at maximum efficiency with a minimum of maintenance.

CUSTOMER SATISFACTION

The long operational life and minimum service requirements of CURTIS air conditioning, combined with peak performance, assures satisfied customers.

PRE-SOLD PROSPECTS

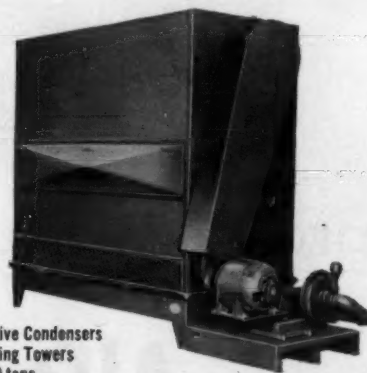
National advertising beamed at virtually every prospect category helps pre-sell Curtis equipment for you. CURTIS provides sales and promotional aids to make your selling job easier.

PRICED FOR PROFITS

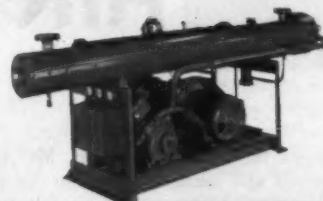
All Curtis air conditioning equipment is competitively priced, with a very generous profit margin for you!



Packaged air conditioning units—3 through 50 tons.



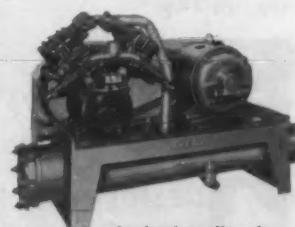
Evaporative Condensers and Cooling Towers up to 100 tons Air handling units to match.



Packaged Liquid Chillers—7½ to 100 tons—F-12 or F-22. With room console units to provide controlled cooling and heating without duct work.



Packaged Air Cooled Air Conditioning Units—2 through 7½ tons. Residential and commercial applications.



Condensing units up to 100 tons—F-12 or F-22.

ary air, and induced room air over water coils in the room units. The temperature of these coils was to be controlled by a thermostatically controlled valve in the water supply line.

"In comparing this system with a dual duct, all air, high velocity system, it was believed high velocity would be more economical for the owner and for the shipyard.

Air Handling Unit Set In Machinery Room

"By placing the air handling unit in the machinery space, all of the large ducts, over 5 in. diameter were kept out of the crowded space over the ceiling in the quarters.

"The air handling unit contains the filters, cooling coils, and the fans. The filters are conventional dry air filters with fibrous glass as the medium. The cooling coils are direct expansion coils with "Freon-12" as the refrigerant. The fans are centrifugal highspeed fans with backward-curved blades.

Ducts Sized To 4,000 F.P.M.

"Due to the limited space available the ducts were sized on the basis of 4,000 f.p.m. maximum velocity—which is higher than normal marine practice—and for a pressure drop of 1-in. wg. per 100 ft. of duct.

"For final distribution within the living spaces sound attenuator boxes equipped with 100% induction diffusers made by the Anemostat Corp. of America are used.

"The attenuator boxes are a combination of control valves, mixing chambers, and sound absorbers in a self-contained unit.

The hot air and cold air enters the boxes through the control valves which are linked together in such a manner as to maintain a sufficiently constant total volume of conditioned air.

"The position of the valves is controlled by thermostats located within the respective spaces. The hot and cold air is thoroughly mixed before entering the 100% induction Anemostat air diffuser where it is mixed with an equal amount of room air for final distribution.

Attenuator Boxes Absorb Noise

"The attenuator boxes are designed to absorb the high-pitched noise from the turbulent (Concluded on next page)

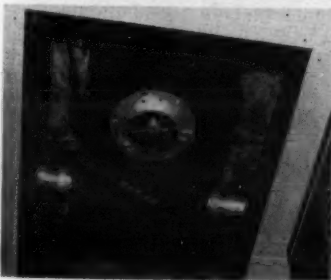
REMEMBER—
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OUR 104th YEAR
MANUFACTURING COMPANY • REFRIGERATION DIVISION
1912 Klenlen Ave., St. Louis 20, Mo.



ONE OF the first offshore drilling rigs to be equipped with high-velocity air conditioning is "Mr. Arthur."



ATTENUATOR box before attaching diffuser. Hot and cold air enters through the round ducts and is thoroughly mixed before being distributed by the diffuser.

Conditioned Rig--

(Concluded from preceding page) air and also absorb high-pitched sound from the backward-curved fan blades.

"Even though the design pressure is not exceptionally high—less than 5 in. wg. which permits the use of Class II fans—round duct are used to keep friction losses to a minimum.

"All air is recirculated with the exception of the air necessary to satisfy the requirements of the toilet and shower spaces. A minimum amount of fresh air augments the galley supply and provides an inflow into the galley to prevent odors from leaking out.

"The insulation of the ductwork is similar to a normal marine installation, that is, 1 in. of fibrous glass is used on the warm air duct and 1½ in. with a vapor barrier on the cold air ducts.

'Saving Offsets Increased Cost'

"It is estimated that the saving in space, ductwork, and piping easily offsets the slight increase in cost caused by somewhat greater horsepower required for operating the system as well as absorbs the higher cost of the high-velocity, 100% induction diffusing units.

"The control system is a

Death Notices

Thomas W. McNeill, 57, an executive of American Radiator & Standard Sanitary Corp., died recently in Darien, Conn. He joined the company in 1923 as secretary to the president and moved up to become president of American-Standard Air Conditioning Div. His last post was director of procurement for the parent company.

Matthew W. Kirk, 61, operator of a refrigeration sales and service company in Clarksville, Tenn., died of a heart attack recently.

fully-automatic pneumatic system with manual change-over from winter to summer operation. The manual control switch places the central plant unit on summer or winter operation, with the 'Freon-12' direct expansion coils employed during the summer season and electric heating elements during the winter season.

Pre-set Outdoor Damper Air

"An outdoor air damper in the fresh air duct is pre-set in order to provide the proper amount of fresh air and return air at all times. When the outdoor air is favorable, up to 100% outdoor air may be intro-

duced into the system and the need for mechanical refrigeration be eliminated. This practical money-saving arrangement is another advantage of all-air high velocity systems.

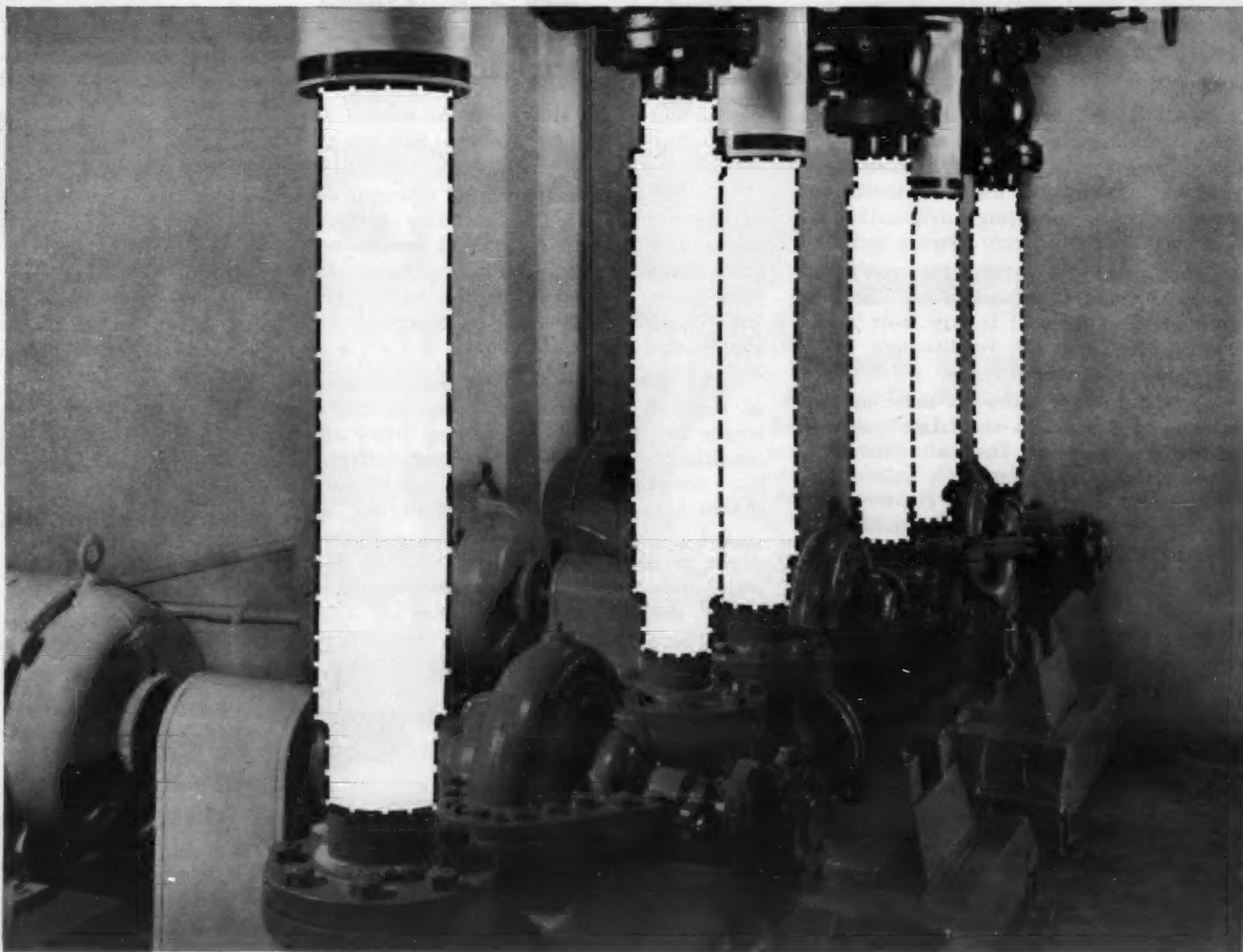
"Fresh air and the recirculated air are mixed before passing through the filters and into the unit. Only 50% of the total volume of the air circulated in the system is cooled in summer or heated in winter.

Three-Circuit Heating Element

"The heating element is a three-circuit unit which permits use of three separate successive heating stages depending on outdoor weather conditions. The

control valves in each attenuator box are operated by a pneumatic motor and their relative position (open or closed) is controlled by thermostats which are strategically placed."

Dunlap stated that the following companies were responsible for this interesting installation: Naval architect, Friede & Goldman, Inc.; prime contractor, Alabama Dry Dock & Shipbuilding Co.; prime subcontractor, Mobile Refrigeration Co.; refrigeration components, Frick Co.; air handling units, Marlo Coil Co.; high velocity terminals of air diffusers, Anemostat Corp. of America; and thermostats supplied by Minneapolis-Honeywell Regulator Co.



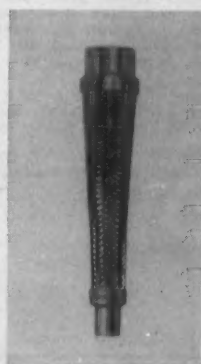
How would you complete this picture—to insure good will?

Noise and vibration can shake your reputation as a good contractor. That's why the job pictured above is "unfinished business"—until American Vibration Eliminators have been installed. American VE's dampen noise, absorb vibration, and prevent cracked

pipings. That means satisfied customers. It means satisfied contractors, too—because *your* profits are protected! American Vibration Eliminators cut down costly return calls... provide top service without maintenance. See your Anaconda distributor.



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For descriptive folder write: The American Brass Co., American Metal Hose Division, Waterbury 20, Conn. In Canada: The Canadian Fairbanks-Morse Co., Ltd.



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The Basic Metal's Right—It's a special tin-bronze alloy. Of scores of copper-base alloys, this one was selected because of its capacity to withstand the punishment of long periods of vibration. The wire braids, adding strength and durability to the VE, are also made of tin-bronze.

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AIR CONDITIONING
& REFRIGERATION **NEWS**

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VOLUME 83, No. 12, SERIAL No. 1,513, MARCH 24, 1958

"The mass of people must be barbarous where there is no printing, and consequently knowledge is not generally diffused. Knowledge is diffused among our people by the newspapers."—Sam Johnson, *Boswell's Life*, March 31,



PLEASED TO SEE EDITORIAL

Wisconsin Power & Light Co.
Madison 1, Wis.

Editor:

You can imagine that we were pleased to see your editorial in your issue of March 3. Good work!

M. R. NORTON,
General Sales Manager

RIGHT CHURCH, WRONG CITY, SO STOP LOOKING!

453 Ridgeland Ave.
Elmhurst, Ill.

Editor:

On page 2 of your Feb. 24 issue you have a report of an installation or air conditioning at Douglas Ave. Methodist church at Decatur, Ill.

As a former resident of Decatur, I am interested in this. I never heard of Douglas Ave. Methodist church nor can I find such a church listed.

Will you please tell me at

your convenience whether this report is accurate or not.

JAMES V. EVERARD

Editor's Note: Stop looking for the church in Decatur. We goofed. It's in Springfield, Ill.

OPPORTUNITIES EDITORIAL INTERESTS NCRA

National Commercial Refrigerator Sales Association
Philadelphia 3, Pa.

Editor:

I have read with a great deal of interest, the editorial in your Feb. 24 issue—"Tremendous Opportunity for Commercial Refrigeration." I am sure that this will be "good news" to members of our association who may not have seen it. I would like very much to reproduce copies and send them out.

I should like your permission, therefore, to make photocopies of the article. We will, of course, give credit to the NEWS.

MARIE H. LAWTON,
Executive Secretary

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Our OEM Market Is Interrelated

MANUFACTURERS of heat exchangers, valves, motors, compressors, insulation, controls, tubing, fittings, refrigerants, oils, gauges, instruments, machine tools, etc., who supply the sprawling refrigeration and air conditioning industry share a bed.

They should realize that they can't grow unless ultimate consumers of End-Use Products are titillated to buy more refrigerators, freezers, air conditioners of all types, and even frozen foods.

In short, their sales to manufacturer-assemblers depend on the latter's sales to ultimate consumers. They also should be aware of the fact that each sale of any refrigerated product starts a chain-reaction which benefits everyone in our industry.

Let's take the commercial refrigeration distributor as a link in this chain (and an important one he is, too). Here is his stake in the success of other refrigeration products:

(1) Household refrigerators. Increased sales mean more new family units—all of which must buy food and refrigerate it.

Hence, more food stores will be needed to supply newly-developed commercial refrigeration needs.

(2) Home freezers. Rapid flowering of packaged frozen foods—including specialties and complete heat-and-eat meals—require home freezer capacity expansion. In turn, more commercial frozen food cases will be purchased if food retailers are to supply this growth demand.

(3) Air conditioners. Comfort-cooling of food stores causes shoppers to linger longer and buy more. Likewise, home air conditioning increases appetites. Ergo: more commercial refrigeration will be purchased by air conditioned food stores.

Let us repeat: all promotion of any consumer products sold by any sector of our entire industry will benefit every supplier, jobber, dealer, and manufacturer.

We're all so intertwined with one another's enterprises that anything which promotes or publicizes any part of our industry should enhance the profit structure of every business within it.

More Glass, More Air Conditioning

EVERYBODY seems to want more "see-through" glass these days—in their homes, their automobiles, their offices, and factory buildings. And they're getting it.

Not only do extravagant glass windows enhance the joy of living, but celebrated Dr. Leon Buchbinder declares that extra exposure to sunlight (through tinted glass) is a boon to health.

In the *American Medical Journal* he reports that sunlight kills airborne bacteria—which spread colds and other respiratory infections. To municipal planners he recommends maximum window space in new hospitals, schools, and homes—so as to insure cleaner, purer air for sickly folk and youngsters.

Picture windows in homes help human beings (especially families) to become "more human," affirms Dr. James Bender, Director of the Institute of Human Relations.

Generously windowed, well-daylighted rooms enhance personal happiness—and conduce contentment plus a feeling of well-being for those lucky husbands, wives, and children who are privileged to enjoy them, he observes.

The psychological value of good natural light may have special significance in clear-

ing up psychosomatic emotions which lead to "sick leave," psychiatrists agree.

Further evidence of the values of abundant light in homes and factories can be gleaned from separate studies made by the Mayo Clinic, the University of Michigan, and Tufts college.

Combined, their research into this subject intimates that 25% of an individual's physical energy is expended in the simple act of seeing, and that this percentage is increased alarmingly when he works, eats, or reads under inadequate light.

People in our industry should applaud these scientific findings, and the architectural trend toward enlarged window space. More glass will increase the need for, and tonnage of, air conditioning.

Inasmuch as air conditioning itself is an aid to health and happiness, the combination of healthful solar radiation, scientific temperatures, and relief of nervous tensions through natural outlooks eventually may relieve the doctor and nurse shortage.

More glass, more air conditioning.

More air conditioning, longer lives and better health.

Tie these phenomena together, and human happiness will be enhanced.

TECHNICAL CENTER

By Frank J. Versagi, Technical Editor

Used Driers (7)

If, in addition to the visual inspection, the serviceman wishes to conduct simple chemical tests, there are a few basic chemicals he will need.

The serviceman interested in the following information should read it over once quickly to get the general idea. Then put the article aside and re-read it slowly when ready to go into detail.

We mentioned earlier that there is disagreement among the drier manufacturers as to whether it is advisable for the serviceman to attempt any chemical tests. The tests we describe below are designed to enable the serviceman to identify large amounts of impurities; if the total sludge is extremely small in amount (about the size of a pinhead, for example) then it is obvious that more sensitive tests by skilled personnel are called for.

TEST SERVICEMAN CAN DO EASILY

But when there is a half a teaspoonful or so of sludge and foreign matter on the filtering element, or if there are a couple flakes of solid matter stuck in an orifice, the tests we describe will be sufficient to let the serviceman determine in very little time, just what the major contaminants are.

Table 2 lists the four basic chemicals which are needed for conducting the simple tests we will describe. A friendly druggist can usually obtain the first three for you; lacking that a chemical supply house will have them although, in this case, you will have to do the weighing and measuring yourself.

'HAVE GOOD IDEA OF RESULTS TO LOOK FOR'

Before working on unknown samples, it is a good idea to get familiar with the results which you will be looking for in these tests. Get a small piece, a scraping or so, each of copper, iron, and aluminum. Place each in a separate glass and cover it with nitric acid solution. If the reaction is slow, hold the glass in hot water for a minute to speed the dissolution.

Double the volume of the solution with distilled water.

To the dissolved copper solution, add household ammonia stirring with a glass or plastic straw while doing so. The solution will pass through a blue-white stage and end up deep blue. This deep blue is a positive test for the presence of copper in a solution. That is, if you add ammonia to an unknown solution, no matter how that solution was obtained, and the blue color develops, there is copper in the solution. It may have been from metallic copper, copper oxide, or copper salts—but the test will show its presence in the solution.

To the iron solution, add a few drops of ammonium thiocyanate. The solution will turn a deep red. This is a positive test for iron. This test always results in at least a slight pink which may or may not indicate iron. But for practical purposes, the serviceman need only be

concerned if a deep red shows, since this indicates a significant amount of iron.

To the aluminum solution, add household ammonia. A white jelly-like solid will form, a positive indication of aluminum.

In a separate glass dissolve a little table salt in distilled water. Then add a drop or two of silver nitrate solution. A distinct white solid will form immediately. If the solid is allowed to stand in the light, it will slowly darken to a purple-black color. This is not a test for salt, but for chloride which the salt contains.

Thus, if hydrochloric acid has reacted with any metal to form a chloride (copper chloride, iron chloride, or aluminum chloride) this test will show the presence

Table 2—Chemicals Needed To Perform Simple Identification Tests

Nitric Acid—one part acid, one part water.

Household Ammonia.

Ammonium Thiocyanate— $\frac{1}{2}$ weight ounce in $\frac{1}{2}$ pint distilled water.

Silver Nitrate— $\frac{1}{2}$ weight ounce in $\frac{1}{2}$ pint distilled water. Store in a brown bottle, or protect from light.

Distilled Water.

of the chloride, and indicate that there has been some acid attack in the system.

DIFFICULTIES

While these tests are very positive and distinct when we use pure solutions like above, they become more difficult to interpret in practice, because the solutions may be dirty and because it may contain more

than one of the substances being tested for.

Thus, if a sample solution contained a lot of aluminum and copper, we would get both a blue color and a white jelly-like solid when we added ammonia. It might be a bit difficult to determine the color of the solid in the deep blue, but a simple trick like holding the solution up to a strong light will help.

Incidentally, iron will form a reddish-brown jelly-like solid with ammonia. If the solution is clean enough that you can determine the developed solid is actually reddish-brown, this can serve as a test for iron; if there is any doubt, use the ammonium thiocyanate for the deep red color is a positive test.

Revere Establishes Center

MILWAUKEE—Revere Copper & Brass, Inc. has established a redistribution center here to expedite shipment of its tubing.

36 Refrigeration Men Set In Los Angeles Rses Study

LOS ANGELES—Refrigeration Service Engineers Society study course class meetings are held in quarters made available by Lennox Industries.

The course being given this year is the second year of the 3-year RSES study program. First year is basic, second year covers application, installation, and maintenance; and the third year will cover engineering phases and system components.

Enrolled are 36 students, refrigeration journeymen, and related technicians. One student come from Lancaster 100 miles away.

The study course is sponsored by San Gabriel chapter of RSES.

Instructors are Charles Nash, Frank Foreza, and Joseph Sever.

YORK

ZONE COOLING PLAN

MAKES SENSE BECAUSE IT SAVES \$\$\$\$\$\$

IT MAKES SENSE TO Add Air Conditioning Step By Step! You can show prospects with limited budgets how to save by air conditioning the important areas first and adding air conditioning for the remainder at a later date!

IT MAKES SENSE TO Air Condition Only Those Areas That Require It! You feature lower initial costs, lower operating costs, because unimportant areas that waste precious cooling power need not be air conditioned!

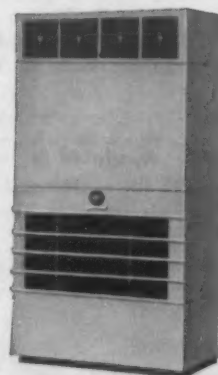
IT MAKES SENSE TO Save On Installation! You can install York Packaged Units without tearing down walls, without adding costly construction charges. Installations are made quickly, easily—often without disrupting normal business routine!

IT MAKES SENSE TO Operate Units Independently! On mild summer days, or when certain areas are unoccupied, only the units needed are turned on. Your customer pays operating costs only on those units actually in use. And, if one unit should need servicing, there's no need to shut down the entire system!

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WHAT... WHEN... WHERE

— A Guide to Coming Events of Interest

Gas Appliance Manufacturers Association Annual Meeting
March 31-April 2,
The Greenbrier, White Sulphur Springs, W. Va.

Air-Conditioning & Refrigeration Institute Annual Meeting
May 4-7, The Homestead, Hot Springs, Va.

National Restaurant Association Convention, Exposition
May 5-9, Navy Pier, Chicago.

Western Air Conditioning, Heating, Ventilating and
Refrigeration Exhibit
May 7-11, Shrine Exposition Hall, Los Angeles.

Edison Electric Institute Annual Convention
June 9-12, Boston.

Oil-Heat Institute of America Convention, Exposition
June 9-13, New York City.

American Society of Heating & Air-Conditioning Engineers
and American Society of Refrigerating Engineers JOINT
MEETING
June 23-25, Leamington hotel, Minneapolis.

National Association of Plumbing Contractors Convention
June 30-July 3, Pan Pacific Auditorium, Los Angeles.

Air Floor Panel System of Air Conditioning, Heating, Hollow Concrete Floor Carries, 'Stores' Heated, Cooled Air at Lessened Expense

LOS ANGELES—A new and different approach to the problem of air distribution and thermal environment has been developed by Air Floor, Inc. of Norwalk, Calif., by the use of an air panel of "Air Floor" system to heat, ventilate, or air condition buildings; and has had application in a number of installations in this area.

A discussion of the air floor system was presented by John B. Richardson of the J. S. Hamel Engineer of Burbank, Calif. Air Floor air distribution systems have been installed in a number of California schools.

Air Moves Through Hollow Concrete Floor

The air panel system of heating, ventilating, and cooling is a rather new approach to the problem of comfortable classroom environment, by the use of air movement through a hollow concrete floor.

The hollow concrete floor is formed by laying a series of metal pans on top of a concrete sub-slab. The metal pans are then covered with another thin slab of concrete approximately 1½ in. thick.

Total over-all thickness of the concrete slabs, including the metal forms, is usually 7½ in. The total mass of concrete involved, which includes the upper and lower slabs, is usually about 4½ in. The void formed is two-directional with only 7½% of the upper slab in contact with the lower surface.

Several Ways To Introduce Air

A number of methods can be used to introduce warm or cool air into the hollow floor. One method makes use of a concrete pipe with small sleeves that allows the air to escape into the floor at even intervals. A concrete trench with bridging plates to cover the trench is another method.

Air distribution into the classroom from the air panel can be accomplished by means of base-board registers, windowsill registers, toe space registers, or wall outlets. Air return is accomplished through similar con-

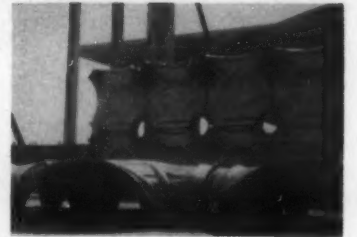
ventional methods.

Richardson said that during the course of the Hamel firm's research in engineering systems for approximately 80 schools in southern California, a definite heat store-house or thermal fly-wheel effect was found in the floor. This can result in a substantial reduction in the heating investment and operating costs, he declared. A similar "store-house" is also affected for comfort cooling.

Uses Flywheel Effect To Control System

Utilization of the thermal fly-wheel effect in the floor is definitely used in the control of the system, Richardson pointed out. Usual procedure is to start the system about one and one-half hours prior to school opening, using 100% return air.

At the time the school opens a timeclock switches all dampers to correspond to a 25% outside (Concluded on next page)



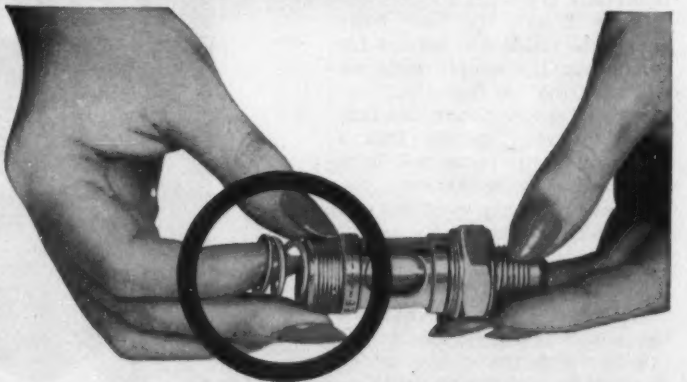
TYPICAL air floor pan showing construction, made by Air Floor Corp., Norwalk, Calif.



ANOTHER VIEW—concrete trench at interior partition showing installation of bridging plates and air floor forms.



AIR FLOOR pans showing one method of relieving air into space by use of ductwork boots.



SHE'S PUTTING SPRINGS IN E-Z-SEE LIQUID INDICATORS

To you, E-Z-See liquid indicators with spring compensated gaskets mean NO LEAKS—with Refrigerant 12 or Refrigerant 22—at operating pressures through 500 p.s.i. and operating temperatures up to 200° F. and down to minus 40° F!

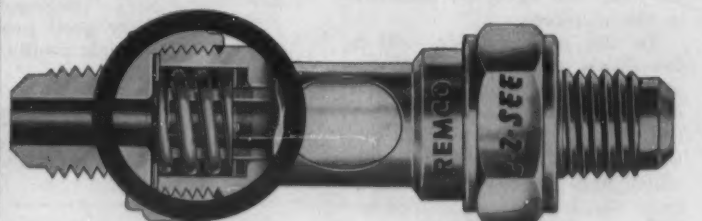
Double port, easy to see through, spring compensated E-Z-Sees are available with male flare x male flare, male flare x female flare and with extended sweat connections which permit soft or silver soldering without disassembly.

E-Z-Sees are also available with a very sensitive FLO indicator flap directly in the refrigerant stream. With this sensitive flap all variations in flow are instantly indicated.

The full story is given in Bulletin R-11. Write today for your copy.

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KARLSONITE SCALE REMOVER for Air-Conditioning Equipment

- Removes All Scale Incrustations in cooling towers, evaporative condensers, water cooled condensers and ice cube makers.
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When you are putting air-conditioning systems back into shape for heavy summer service, you can remove all scale incrustations, algae, slime, and silica deposits from cooling towers, evaporative condensers etc. with KARLSONITE!

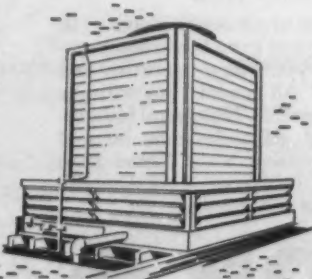
This is a solid—dry crystals—Just add to the sump basin and watch the scale disappear.

It is safe and easy to apply and completely harmless to any metals when used according to instructions.

KARLSONITE can save time and money in cleaning up air conditioning systems and making them ready for heavy summer duty.

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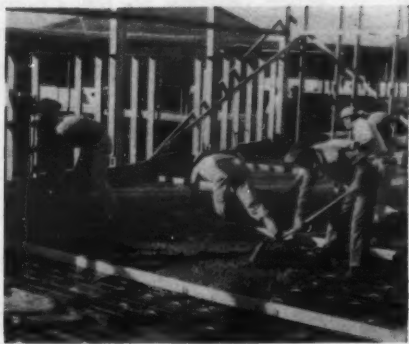
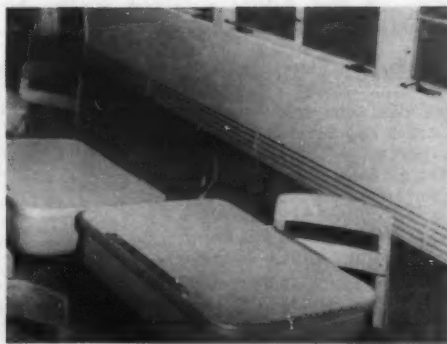
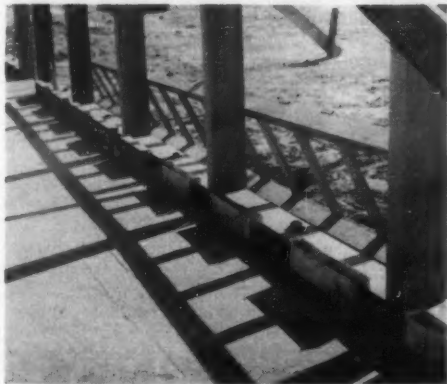


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CHICAGO 45, ILLINOIS

Ventilating Offers New Classroom Approach



ABOVE CENTER: Typical finished classroom.

TYPICAL classroom showing relief base-board-type register at exterior wall.

ONE OF the methods of pouring the top slab for typical school showing approximate location of screeds. Painted up is the fact that even though the panels are constructed of light gauge material they can withstand a man standing on one.

(Concluded from preceding page) air and 75% return air condition. The room is then at its predetermined temperature.

An outside thermostat is set so that when the outside air reaches a temperature of approximately 60° F., all dampers are thrown to a 100% outside air setting. Thereby, turning the ensuing room temperature override into a definite advantage, Richardson explained. A room thermostat controls the amount of heat required in each individual room.

Temperature Findings

Hamel's findings have been that the floor temperatures, whether heating or cooling, vary between 70° and 72°, when the temperature of the air entering the floor ranges from approximately 45° to 95° using 1.5 to 2 c.f.m. per sq. ft. The air temperatures leaving the floor in both cases vary approximately between 68° to 72° F.

A high velocity air distribution system, where velocities as high as 8,000 f.p.m. have been reached without noise and without the use of sound attenuation chambers, has been developed by his firm in connection with the air panel system, Richardson stated.

Heating Cost Runs About \$1 a Sq. Ft.

The cost of a high velocity air floor system, including boiler, pump, air handling unit with coil, and complete with all controls, will run approximately \$1 per square foot installed for heating alone. If air conditioning were desired it would add approximately \$1.25 to \$1.50 a square foot depending on the type of system employed.

Use of a fan-coil unit, said Richardson, lends itself to the future addition of cooling coils without disrupting the entire system. Only necessary added equipment would be compressor, condenser, and cooling coil,

ABOVE LEFT: View showing ductwork relief boots.

along with the associated piping, controls, and accessories.

Equipment used with the air panel system is centralized, making maintenance simple

without disrupting classroom for heating equipment. Air distribution by any method desired; up other advantages for the air panel system as follows:

Claimed Advantages

Fast response. Unlimited zoning. No use of classroom space

air through the concrete and then continuing blower operation the next day, it is stated.

Warm, dry floors are provided, and any desired air change can be effected.

Attention Package and Central Station AIR CONDITIONING DEALERS!
Your last chance to win one of many exciting all-expense paid 7-day

VACATIONS FOR 2 to beautiful, sun-drenched Bermuda



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South Bend Deluxe Spinning Kit



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Color TV

Hurry! Hurry! Hurry! You can easily be the lucky winner of one of the seven-day all-expenses-paid-for-two trips to Bermuda! And while you're trying for this exciting vacation of a lifetime you can be earning valuable prizes in the Worthington Air Conditioning "Prize Flight to Profit." Easy, too. No slogans, nothing to write. No large orders required—no stocking necessary. For full details on the most salable product line available and how you can be a winner, check the yellow pages for the name of your local Worthington air conditioning wholesaler. Or fill in and mail the coupon. Don't delay . . . time is running out!

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AC & R DIVISION, SECTION 12-3
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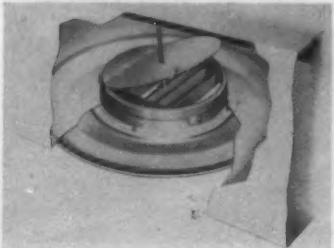
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PRODUCTION COMPANY
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FOR MORE INFORMATION ON THE PRODUCTS DESCRIBED ON THIS PAGE

Write Directly to the Company—at the Address Given in the News Item

Air Conditioning & Refrigeration News, March 24, 1958

Develops Fixed-Cone Diffuser with Damper



A new E-3 fixed-cone diffuser has been developed by Carnes Corp., Dept. AC&RN, Verona, Wis. To use with model E-3 diffuser

when installed on exposed ductwork, Carnes has developed model DT damper which is claimed to eliminate a high percentage of installation time—as well as assure excellent performance through even air distribution in every direction from the diffuser.

DT splitter-type damper is a combination equalizer-deflector and volume control. It is furnished with "S" clips attached; and for installation, all that is necessary is to insert the unit into the neck of the diffuser; the clips hold the damper firmly in place.

Adds Two-Door 'Frost-Free' Refrigerator

A new two-door "Frost-Free" refrigerator (model TSL-12) has been announced by Westinghouse Electric Corp., Dept. AC&RN, 246 E. Fourth St., Mansfield, Ohio.

New model features the high-speed automatic cold injector sys-

tem pioneered in the earlier units in the 1958 line. This system is claimed to chill food and beverages up to four times faster and offset cold loss from door openings.

Frost-Free refrigerator has a 9.2-cu. ft. capacity with freezer capacity of 2.9 cu. ft.

Lists Condensate Removal Pump

Model C 21-F sump-type condensate removal pump for air conditioning and refrigeration

has been announced by March Mfg. Co., Dept. AC&RN, 8015 Lawndale Ave., Skokie, Ill.

It features an aluminum sump and cover, rust proof and corrosion proof.

March mounts as follows: inside the a.c. case and off the unit floor. It can mount outside of the case but off the room floor. It can mount on a wall closely adjoining the unit.

Unit has an effective lift of 21 ft., can be increased up to 24 ft. by the close to drip pan March-type mounting, the company explained.

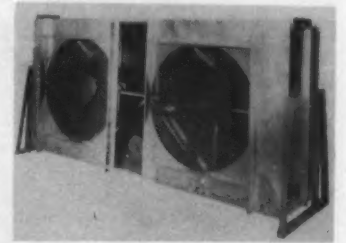


Offers Two Larger Air-Cooled Condensers

"Dricon" air-cooled condenser line has been expanded to include two larger size units, DC-30 and DC-40, nominally rated at 30 and 40 tons, respectively, by Recold Corp., Dept. AC&RN, 7250 E. Slau-son Ave., Los Angeles 22.

Used particularly for large applications where water is not accessible, the Recold DC-30 and DC-40 can be grouped in multiples for use in exceptionally big installations such as supermarkets.

Outstanding features claimed for the Dricon are: adjustable angle iron stand furnished on all units; large, slow-speed, belt-driven fans;



galvanized housing; copper tube aluminum fin coils;—strong fan guard; precision ground shaft; self-aligning ball bearings; motor located inside unit.

Pressure Switch Features No-Drift Settings

New series "PS" pressure switch featuring pressure connectors, top accessible wiring terminals, no-drift pressure settings, and four compact enclosure styles, has been announced by the Furnas Electric Co., Dept. AC&RN, 1000 McKee St., Batavia, Ill.

Series PS pressure switches with



85 lbs. maximum capacity are rated through 1 hp., 110-220 v. single-phase and polyphase. They supply one of the most compact controls available for water pumps, low pressure air compressors, paint sprayers, and other air or water systems requiring automatic control of pressure between pre-set limits, the firm further pointed out.

Designs Globe-Type Needle Valve

New N-20 globe-type needle valve designed for high-pressure service has been announced by Kerotest Mfg. Co., Dept. AC&RN, 2525 Liberty Ave., Pittsburgh 22.

For throttling, regulating, or shut-off, this union-bonneted needle valve is claimed to be ideal.

It features a newly designed forged carbon steel body, back-seating construction which permits repacking while under pressure, and heat treated stainless steel stem operating in a sleeve yoke.



Announces Two-Section Recorder-Controller

A new two-section high-accuracy variable-range humidity recorder-controller is now available from Serdex, Inc., Dept. AC&RN, 12 Bowdoin Sq., Boston.

Accuracy of 3% R.H. is claimed obtained by using a circular animal-membrane humidity sensing element. Operating range is from 15% to 95% R.H. at temperatures from 32° to 130° F.

An indicator window in the sensing section permits direct reading of the recorded humidity indications and control limit lines. Control range is determined by locating chart-indicating electrical contact blocks on a positioning post in the sensing section.

PICK A WINNER!

PARTICIPATE IN THE FASTEST GROWING TRADE SHOW IN THE 11 WESTERN STATES

THE WESTERN
AIR CONDITIONING, HEATING,
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MAY 7-11, 1958

EXHIBITORS...

this will be a selling show. Quality prospects will attend from the Nation's fastest growing market—the 11 Western States. Top-level industry personnel will be attracted to the well-integrated technical program and display.

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Come...See and talk to manufacturers and their representatives ...compare the latest advances in Air Conditioning, Heating, Ventilating and Refrigeration equipment and accessories.

Take advantage of the excellent program of technical sessions.

After 1958, this Exhibit will be presented biennially SO...DON'T MISS THIS WINNER FOR 1958

For space reservations or other information, write or phone:

Fred J. Tabery, Exhibit Manager
Western Air Conditioning Industries Association
3443 South Hill Street, Los Angeles 7, California
Richmond 9-1091



Welding Torch Has Solderless Handle

A newly designed welding torch, designated No. 43, has been offered by Harris Caloric Co., Dept. AC&RN, 5501 Cass Ave., Cleveland.

No. 43 torch is adapted to construction work and general use in

industry for welding and cutting applications. It is a universal pressure torch, and will operate on high, medium, or low pressures. A wide range of styles and sizes of tips are available.

Entire torch handle is completely solderless and all joints are sealed with "O" rings. Immediate replacement of any part can be accomplished on the spot, the company claims.

Humidifier Cleaner Dissolves Rust

"Vapco" humidifier cleaner, a new product that quickly dissolves scale, corrosion, rust, and solids from humidifiers and plates, is being marketed by Garman Co., Inc., Dept. AC&RN, 1253 Grover Rd., St. Louis 23.

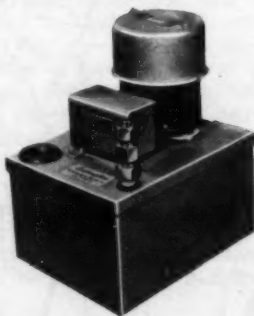
Vapco humidifier cleaner is claimed to be a safe dry powder packaged in 12-oz. cans. One can mixed with approximately 2 gals. of hot water is suitable for cleaning all makes and models of humidifiers, says the company.



Refrigerator Offers Larger Capacity

A sliding door refrigerator with a claimed eight times more capacity has just been released by the C. Schmidt Co., Dept. AC&RN, 1712 John St., Cincinnati 14.

By using tray slides rather than shelves, there is room for 48 cafeteria trays behind each door for items such as butter chips, or 24 trays for salads and desserts, the company says. The refrigerator is made in 45, 70, and 90-cu. ft. capacities.



Designs 'Trouble-Free' Disposal Unit

A disposal unit designed specifically for removal of condensation from air conditioning, refrigeration, and dehumidifying units has been introduced by Eddington Metal Specialty Co., Dept. AC&RN, Eddington, Pa.

Model C-12 is equipped with hydro-mechanical two-level device which assures trouble-free dependability and efficiency, the firm claims. Providing a 20-ft. head, this unit is priced competitively with those of lower head and less capacity. Tank measures 6 x 8 in. with height to top of motor at 10 in.

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INTERSTATE SUPPLY, Inc.

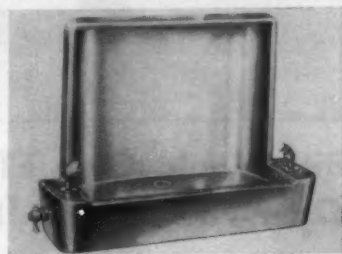
465 Central Avenue
East Orange, New Jersey
Phone: ORange 4-3846

What's New

Produces Semi-Recessed Drinking Fountain

A new semi-recessed double drinking fountain, styled in stainless steel with dual fountain heads and valves is now manufactured by Haws Drinking Faucet Co., Dept. AC&RN, Fourth at Page Sts., Berkeley, Calif.

Model 732 is designed to satisfy drinking water requirements in heavier traffic locations, with the space-economy of semi-recessed installation. Two persons may drink simultaneously. The stainless steel receptor is claimed to

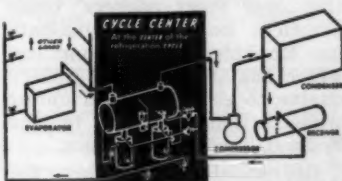


provide lifetime sanitation and ease of maintenance.

Announces Centralized Automatic Control

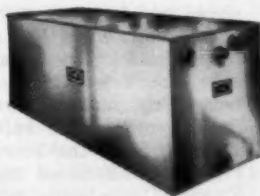
Newly announced is a centralized automatic refrigeration control unit called "Cycle Center" made by J. E. Watkins Co., Dept. AC&RN, 307 Lake St., Maywood, Ill.

Company states that the Cycle Center combines suction trap protection for compressors with feeding "conditioned" liquid to the



temperature and at constant pressure. The liquid is fed at suction

DEPENDABLE, ECONOMICAL PRODUCT COOLING*



**Ice-Cel
ACCUMULATORS**

- FOR DAIRIES
- CREAMERIES
- BAKERIES
- CONFECTIONERS



Stored cooling capacity
for high peak chilling requirements.

LOW INITIAL INVESTMENT • LOW OPERATING COSTS

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In Canada: Dole Refrigerating Products Limited, 44 Elgin St., Brantford, Ont.

Write for Engineering Catalog BPE.

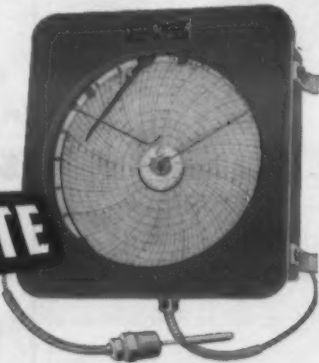
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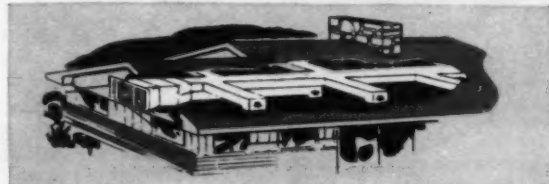
- 2 small mercury batteries in case energize transistor oscillator connected to stylus arm.
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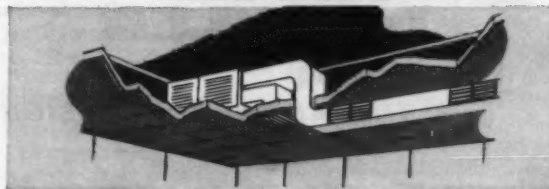
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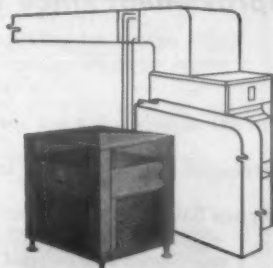


Gable roof—attic installation



Commercial flat roof installation

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Outdoor Air-cooled Condensing Unit



Horizontal Air-flow Evaporator



Counterflow Evaporator



Vertical Air-flow Evaporator



Blower Evaporator for free air delivery

REMOTE SYSTEMS for 2, 3 or 5 hp cooling. Easily added to any new or existing forced warm air heating system. Where steam or hot water heating is already installed, the blower-equipped evaporator provides air distribution. Refrigerant circuit covered by 5-Year Protection Plan.

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What's Going On in Commercial Refrigeration

News of Markets, Products, Methods

Bill Would Give FTC Jurisdiction Over Food Chain 'Meat Packers'

WASHINGTON, D. C.—A bill reported out by the House Commerce committee approving legislation in effect continues the Agriculture Dept.'s jurisdiction over meat packers' trade practices but would eliminate one loophole in the current law which has allowed some grocery chains to escape alleged unfair trade actions brought by the Federal Trade Commission.

Representing a victory for the farm agency by resisting efforts to switch authority over meat packers to the FTC, main

effect of the proposed legislation would be to allow the FTC to move against grocery chains classified as meat packers under the 1921 Packers and Stockyards Act. (The provision defines a meat packer as any concern that owns 20% or more of a packing plant.) The FTC has had to dismiss suits against grocery chains because they technically were meat packers, even though this was only a minor side of their business.

Some lawmakers contend that the Agriculture Dept. has been

lax in enforcement in this field.

Although this section would remain under the new bill, FTC would be given jurisdiction over packers' retail activities. Since major packers have almost no retail business, effect would be to bring food chains under FTC authority.

All sales by "packers" of non-meat products would be switched to the FTC. The Agriculture Dept. would continue to have authority over packers' wholesale business.

If the USDA gave permission, the FTC would also be able to go into these wholesale activities. And USDA could investigate retail operations providing the FTC approved.

Army's Irradiated Food Program Gets Bugged Down

Technical Problems, Economy Drive Blamed

WASHINGTON, D. C.—Economy curbs, delays, and technical difficulties have caused the Army's program to preserve food by atomic radiation to fall behind about two years, it was recently reported here.

After hoping to place its first experimental plant into operation at Stockton, Calif. late this year, the Army now believes it will not be able to process food

by irradiation until 1960 at the earliest.

Defense Dept. and Bureau of the Budget changes have left the Quartermaster Corps' four-year-old plan up in the air. Within the last year the Army has approved a program to feed atomic-preserved foods to troops, but at the same time plans have been upset by the two higher agencies.

Technical difficulties shoved back the U.S. plan to set up a pilot plant at Stockton, with a capacity of 1,000 tons of food a month, even though the Army has been working on the design of a smaller reactor to furnish radiation for several years. It believes atomic-preserved food, with attendant easy storage, would add to troop mobility.

Last fall, when the Administration was trying to hold down government spending, the Defense Dept. and Bureau of the Budget ordered a halt to design work on the reactor. The President announced the Atomic Energy Commission would construct the reactor.

Then the Defense Dept. suggested that, instead of the reactor, the Quartermaster Corps consider using cobalt 60, a radioactive material, as the source of radiation for preserving food. This would be cheap.

(Concluded on next page)



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THE ADVANCED DESIGN

PIONEER

has held the fort for you on every major improvement since World War II

You have to fight when you open up new territory! MODERN EXAMPLE:

When Tyler developed the first line of low, merchandising height, no-glass, open-front Sales-Cases back in '54, the move was welcomed quickly by alert store operators—and strongly opposed by other commercial refrigerator manufacturers. But Tyler held the fort—and today practically every Tyler competitor is offering an imitation of this famous and successful Tyler Advanced Design innovation!

OTHER TYPICAL EXAMPLES

• Tyler pioneered the AUTOMATIC DEFROST, BLOWER-COILED FROZEN FOOD CASE—stood alone for three years. Today all supermarket frozen food cases are refrigerated in this way. • Tyler pioneered the BLOWER-COILED PRODUCE CASE—stood alone for two years—forced another new industry standard. • Tyler pioneered AUTOMOTIVE-TYPE PRODUCTION OF WELDED-STEEL SHELL display cases over twenty years ago. Today competition is still trying to catch up. • Tyler pioneered ROLLING-COLD PACKAGING CONVEYORS, REFRIGERATED DISPLAY TABLES, factory-engineered, MULTIPLE CONDENSING UNIT ASSEMBLIES—held the better-merchandising, better-refrigeration fort until others eventually followed.

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DEPT. AC-13, NORTH KANSAS CITY, MO.

(Concluded from preceding page) er, it was argued.

But the Army rejected this approach as it had done once before in preliminary studies. It objected that cobalt 60 was not necessarily cheaper. Furthermore, the Army contended, cobalt 60 was not always available. This is a vital factor because radiation processing must be timed with crop harvests.

However, the superior Defense Dept. ordered use of cobalt 60, but did not release any money for work to proceed. After the money is released, the Army will have to go through all the work of research and design virtually completed.

Going ahead with test feeding of irradiated foods produced in various AEC reactors, the Army says within the next few

months it will start "troop acceptance tests" by feeding the food to several hundred volunteers at Ft. Lee, Va.

One of the main technical hurdles—off-taste and unappetizing color—has been overcome within the last year, the Army thinks.

Research emphasis has been on meat as the ration mainstay. With irradiation, the Army believes it can preserve uncooked meat without refrigeration for three months and pre-cooked meat for a year or more.

Plans call for frontline troops to be fed pre-cooked irradiated pieces of fried chicken, roast beef, and ham. Immediately to the rear, troops would eat pre-cooked dehydrated meal packets that can be readied by pouring on boiling water.

Brussels Fair To Feature Typical U. S. Soda Fountain-Luncheonette

CHICAGO—One feature of the forthcoming Brussels World's Fair in the U.S. building will be a "typical" American soda fountain-luncheonette.

An estimated 200,000 visitors will pass through the circular U.S. structure to see how Americans live. They will have an opportunity to try an ice cream soda or eat a typical snack bar meal.

To be operated by the Brass Rail, Inc., New York City purveyor, the fountain-luncheonette with its 140-stool bay counter will occupy space on the ground floor of the 4,050-sq. ft. build-

ing. In a center-store installation, two similar rows of Bastian-Blessing Co. fountain-food units will be laid out with each row facing outward. An island installation of allied equipment will be between them.

Each row will be made up for the April show of a "Fast-Serv" soda fountain, a "Coldpoint" drink dispenser, a sandwich unit, a griddle stand, a refrigerator base, a "Vapomatic" electric food warmer and shelf, and service sections.

"Streetscape" on the structure's second floor will be a replica of a typical U.S. street.

Major Ice Cream Co. Investments in Cabinets, 1955

(Abstracted from FTC Brief In Ice Cream Cases)

Company	1955 Gallonage	Increase '55 over '54	Total Cabinet Investment As of 12/55	Cabinet Investment 1955	Cabinet Invest. Per Gal.*	1955 Inducements†
National Dairy Products Corp.	85,871,079	10.7%	\$17,751,545	\$3,468,475	20.7¢	\$4,293,554
The Borden Co.	56,583,549	6.2%	\$ 4,816,017	\$ 332,244	8.5¢	\$2,829,177
Foremost Dairies, Inc.	27,192,321	25.0%	\$ 4,596,177	\$ 407,873	17.0¢	\$ 135,961
Beatrice Foods	35,493,000	14.8%	\$ 8,792,638	\$2,884,407	24.8¢	\$1,674,650
Arden Farms	13,903,100	5.3%	\$ 1,061,586	\$ 221,602	7.8¢	\$ 695,155
Carnation Co.	10,214,935	9.5%	\$ 4,401,122	\$1,175,658	43.0¢	\$ 510,746
Fairmont Foods	12,127,580	21.6%	\$ 1,532,685	\$ 443,451	12.6¢	\$ 606,379
Pet Milk Co.	3,910,549	8.0%	\$ 953,662	\$ 212,251	24.3¢	\$ 195,527
H. P. Hood & Sons, Inc.	8,440,584	6.1%	\$ 2,628,128	\$ 773,889	31.1¢	\$ 422,024

*This applies to ice cream sold to induced accounts only, not to total gallonage.

†Signs, frozen food cabinets, service to dealer-owned equipment, unwarranted cabinet equipment, compressors, etc., but not including financing and off-list pricing. In most cases these inducements were estimated to be given to 10% of company's accounts.

9 Firms Invest \$10 Million In Ice Cream Cabinets In '55

(Continued from Page 1)

alone totaled almost \$10 million. (See tabulation above).

In addition to supplying millions of dollars worth of cabinets, these nine firms, during 1955, spent an estimated \$11,360,000 on such inducements to win or keep retail accounts as supplying frozen food cabinets, service to dealer-owned equip-

ment, unwarranted cabinet equipment, compressors, signs, etc.

The nine firms whose practices were investigated by FTC are Arden Farms Co., Beatrice Foods Co., the Borden Co., Carnation Co., Fairmont Foods Co., Foremost Dairies, Inc., H. P. Hood & Sons, Inc., National Dairy Products Corp., and Pet Milk Co.

Only other company in the ice cream manufacturer-wholesaler industry—to which complaints were limited—operating on a comparable scale is Swift & Co., according to the FTC brief. Swift is outside the jurisdiction of the FTC by reason of being a packer.

This is the first part of an article dealing with the subject of "how big a pawn refrigeration equipment is in the rough and tumble battle for ice cream distribution." It runs in this issue on this and the following three pages. Continuation of the report will be included in a future issue.

FTC Charges

The companies named are specifically charged with "obtaining or holding or attempting to obtain or hold dealer accounts by

"1. Providing financial assistance to dealers in the form of loans, sales of equipment on time payment plans, trade agreements, performance contracts, advance rebates, direct or indirect money payments, or endorsement of credit.

"2. Supplying ice cream cabinets or other facilities or equipment to dealers.

"3. Selling or offering to sell off list.

(Continued on next page)

ment, unwarranted cabinet equipment, compressors, signs, etc.

Most spend equal or larger sums on direct financing and off-list pricing, the FTC attorneys' brief indicated.

1,672 Others 'Follow Same Practices'

These figures, of course, apply only to the nine large firms. They do not cover amounts spent by their 1,672 smaller ice cream manufacturer-wholesaler competitors who admitted they followed the same practices to the extent of their limited capital resources.

The FTC attorneys also esti-

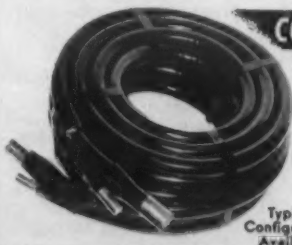
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with these advantages:

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EDWARDS ENGINEERING CORP.

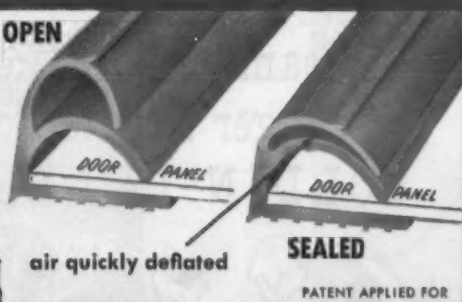
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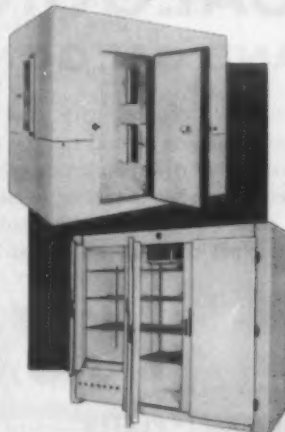
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FTC Claims 'Public Is Hurt'; Mfrs. 'Buying,' Not Selling, Accounts

(Continued from preceding page)

"4. Giving or offering to give dealers gratuities of value.

"5. Entering into agreements, expressed or implied, requiring dealers to handle, store, or sell respondent's products exclusively."

FTC attorneys claim that these companies, on the average induce about 15% of their retail accounts and obtain or hold more than 30% of their volume by such means. They spent more than \$28 million on such inducements in 1955, which averaged more than 25 cents a gallon on the ice cream sold to induced accounts.

This brief, along with those filed by attorneys for the companies, are now being studied by the hearing examiner. He will,

presumably, either dismiss the charges or issue a cease and desist order. It is not known at the moment how long this will take. The decision may come soon.

Attorneys for the ice cream manufacturers did not dispute the facts, according to the FTC brief, but argued that the challenged practices played little, if any, part in dealers' choice of suppliers.

'Sell by Service, Quality, Ads'

They asserted that they sold their products on the basis of quality, service, and national advertising.

They further argued that they use the practices in question only to meet competition

by the small manufacturer.

FTC attorneys contended in their brief, however, that these practices are the deciding influence in causing retailers to switch suppliers. They add that the practices are working to the detriment of smaller competitors and the public.

'Deprives Public of Savings'

The public is hurt, they said, because ice cream manufacturers are actually "buying" accounts, not selling them. The high cost of the inducements not only effectively cuts out small manufacturers from profitable accounts but deprives the public of a saving in the price of ice cream of from 10 to 25 cents a gallon or an increase in quality by the same amount.

The public would save this much—the cost to the manufacturer of the special inducements—because testimony indicates that the inducements of-

fered were not economically necessary to the retailer. Dealer witnesses indicated that if the ice cream manufacturer had not provided the cabinet or financing they could and would have obtained it through normal channels.

No Argument by Refrigeration Men

Although refrigeration contractors and distributors assisted the FTC in obtaining evidence of the equipment giveaway practices complained of, no argument on behalf of the refrigeration industry or testimony by any witness from the industry was mentioned in the brief.

The FTC attorneys built their case entirely on the effect these "unfair" practices of the "big nine" had on their ice cream manufacturer-wholesaler competitors and on the public.

However, a great deal of the testimony in the brief brought to light the extent and effect of the refrigeration "giveaway" practices which have caused considerable alarm among refrigeration contractors and servicemen.

It also revealed a desire on the part of some smaller ice cream manufacturers at least to rid themselves of the need to supply dealers with cabinets. Testimony indicated that some retailers are able and ready to buy their own cabinets if the dairy did not furnish them.

On the matter of cabinets, the FTC attorneys argued as follows:

"Ice cream manufacturers supply ice cream cabinets to their dealers. To our knowledge no other industry does this.

"The cost of supplying cabinets is not in dispute. Costs have risen. Mechanical cabinets are not the simple items they once were. Some of them are self-defrosting and others have various improvements which add to their costs.

"Respondents (the nine manufacturers) have attempted to maintain the proposition that it is essential to the quality of their product that they own the

ice cream cabinets in dealers' places of business.

'Other Industries Do Not Supply Cabinets'

"Other industries, whose products require refrigeration, as for example, the frozen foods industry, the meat industry, and the beer industry do not supply refrigeration equipment.

"Modern ice cream cabinets are as fool proof as are deep freeze boxes and household refrigerators. Dealers can and do own and take care of them.

"Some 30% of the ice cream used reaches consumers through dealer-owned equipment. Chain stores and supermarkets are large merchandisers of ice cream and they generally own their own equipment.

"Many large independent dealers find it more profitable to own their own cabinets.

"The record shows that some of the respondents have at one time or another switched to a policy of having dealers own their cabinets. This disproves the self-serving declarations of their own company officials who testified. . . .

"Having to meet cabinet competition constitutes a very serious drain upon the capital of small companies."

As one small ice cream manufacturer testified, "When you buy \$20 or \$30,000 worth of cabinets a year, you could use that money to better advantage than in ice cream cabinets, if you were able to get business without putting the ice cream cabinets out."

'Placing Cabinets Is Toughest Competition'

A Houston, Texas ice cream manufacturer said placing cabinets was the toughest competition "because you can spend so much money at so many stores and you are out of money. You put these \$600 cabinets in enough spots, that's \$1,200 a stop, and you get a hundred of them and you've got a lot of money tied up.

"It's not the fact that we mind putting them in for ice

(Continued on next page)

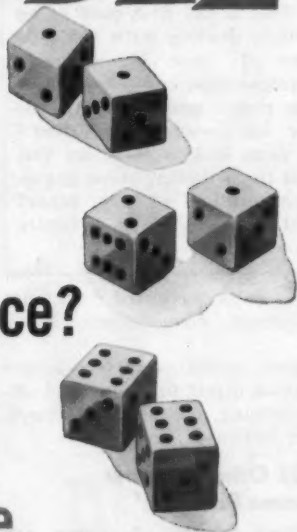
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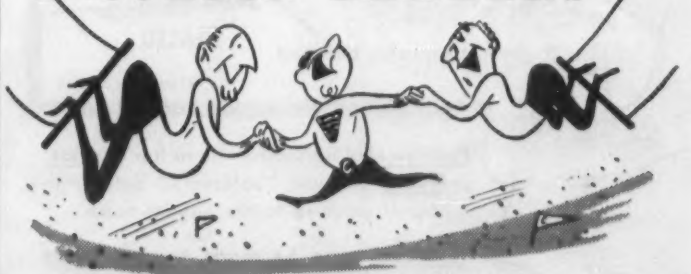
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'Do Some Firms Offer Special Services?' 'Yes—Free Refrigeration Service'

(Continued from preceding page)
"Q. Why do they need three ice cream cabinets to dispense ice cream?"

"A. Well, you have to put in some for frozen foods."

"Q. Is that because of your competition?"
"A. Yes, sir."

'Don't Make as Much Per Gal. Anymore'

"Q. Do you make as much profit per gallon of ice cream in '55 as you did in '47?"

"A. No, sir."

"Q. Why is that?"

"A. Well, it's your expense of distributing it, your expense of manufacturing it."

"Q. Has there been a sizeable increase in the cost of distributing ice cream and getting accounts?"

"A. I think it has, sir, yes. As I explained before, a cabinet would cost \$400, where now it would cost seven, eight hundred dollars."

"Q. And before I think you said you were able to collect more rentals than you are today?"

"A. Yes, sir; 90%."

FTC attorneys further argued that the supplying of ice cream cabinets by manufacturers does not result in the development of trade in ice cream. Originally, one witness declared, the practice was started to develop the market for ice cream. But now, he said, the market has been developed.

Refrigeration Used

Excerpts from testimony presented as part of the brief are full of details on how refrigeration equipment is used to influence the sale of ice cream and to the extent manufacturers will

go to get and keep an account.

A Portland, Ore. dairy operator—not the one cited earlier, gave this over-all picture under questioning.

"Q. What kind of competition do you meet in attempting to get ice cream accounts?"

"A. Well, there are numerous things that companies do nowadays to get accounts. They do everything but buy the property. They give neon signs, paint buildings, furnish meat cases, frozen food cases, and, of course, the biggest thing is lending money."

"Q. Is there sort of a primary requisite that you have to meet, such as supplying cabinets to an account?"

"A. Yes, that's right."

"Q. That is the primary requisite?"

"A. That's right."

"Q. You have to do that?"

"A. You have to do that to get into an account."

"Q. And sometimes to get some accounts you have to do something additional?"

"A. That's right."

"Q. Have you ever known anybody to take an account from you by offering store fixtures or equipment, such as sandwich units, grills, backbars, shelves, cases, walk-in coolers, or anything like that?"

"A. It is a very common practice."

"Q. Do some ice cream companies offer special services, such as decorating the store?"

"A. That's right. Refrigeration, free refrigeration service."

"Q. Well, is there a difference in the inducements that are offered to the bigger accounts than there is to the little accounts?"

"A. Yes. One of the customers, the consumer that has

(Continued on next page)

'Mrs. Become Judges'

"Under it manufacturers become the judges of the dealer's needs rather than the dealer himself. The manufacturer serving an account knows the account's gallonage."

"The contenders for it have to estimate the dealer's needs. This results in competition as to cabinets. Cabinets take on the form of an inducement. The way bidding for accounts becomes centered in cabinets is illustrated by the testimony of competitor-manufacturer witnesses."

A Salem, Ore. manufacturer testified as follows:

"Q. Has the cost to you of supplying equipment to your accounts increased or decreased since the war?"

"A. It has increased, sir."

"Q. Very much?"

"A. Oh, yes."

"Q. Can you explain that?"

"A. Well, it used to be we could put a cabinet in a place and it would cost you \$400. It now costs you seven to eight hundred dollars, and we have to put in three of them."

"Q. In some of the larger accounts you have to put in three?"

"A. That is right."

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DESIGNED TO SELL MORE . . . ENGINEERED TO SAVE MORE

Mfr. Says Ice Cream Cabinet Repairs, Maintenance, Delivery, Installation Costs Run \$20,000 a Year

(Continued from preceding page) the biggest gallage, he's always out in the lead to get the fancy price or the equipment or the store decoration or whatever they happen to ask for. They would naturally get more than the little store."

Offers Reasons Why Mfr. Doesn't Need To Own Dealer's Units

Asked if he thought it was essential for the manufacturer to own all the cabinets in dealers' accounts, a Richmond, Va. manufacturer said no, and gave these reasons why:

"He (the manufacturer) would be better off if he didn't own them because the dealers will take better care of the ice cream if the equipment is theirs. If the cord gets pulled out or the mice chew it in two and the ice cream goes soft, they will look at it and take care of it. But if we are responsible, they don't care. So if they own their own equipment they are better off and we are better off."

Then why do manufacturers do it? A Concord, N. C. dairyman answered it this way:

"When we first started into it (the ice cream business) I guess we had a very naive idea of it. We were going to sell our cabinets or something of the kind. But we didn't get anywhere with it. In other words, there was no point in people buying cabinets if they could be

furnished a cabinet. So we just started putting the cabinets out, supplying cabinets."

'Cabinet Mfrs. Making It Rough'

Some ice cream manufacturers complained that the cabinet manufacturers were making it rough on them. One said:

"The situation is you couldn't be in the ice cream business if you didn't have the cabinets to furnish people. . . . It was, 'Well, what kind of a cabinet am I going to get?' was the question."

"Nine times out of 10 if they had a cabinet of a certain model they always wanted a better one. They didn't want one equal to it or less equal to it. They wanted a better one."

"About that time the manufacture of new cabinets got rolling pretty steadily. Consequently the ice cream cabinet manufacturers kind of fouled up the deal and this thing of issuing equipment."

"By the time you turned around a new ice cream cabinet manufacturer had a new model. So the competitor would offer to provide a new model cabinet which made your last year's model, in the mind of the prospect, an oldtimer. . . ."

'Expensive To Keep Buying Cabinets'

"It's expensive to keep buying ice cream cabinets for the reason that the constant renewal

of or the constant manufacture of new types of ice cream cabinets has required the manufacturer to keep pace.

"You go into a store, for example, and it used to be that you could furnish a cabinet that would cost, say, maybe \$400 or \$450."

"For the volume of ice cream business there that was the requirement. Later it got to the point where self-defrosting equipment came into being. For the same size account and for the same size of cabinet, cubic footagewise, it would cost you \$750, \$800 for a cabinet, depending again upon the manufacturer."

"That is an economical priced cabinet. You could go up into cabinets for \$1,100, \$1,200, \$1,300 which was not uncommon for the same size account volumewise. In a matter of a few years the cost of supplying cabinets to a store rose, went up double or more."

'New Evil Coming In'

Another ice cream manufacturer said, "Today there is a new evil coming into the picture. That is these enormous open type self-defrosting refrigerated cases which run into the \$1,200, \$1,500, and \$1,800 figure depending upon the size of the case."

"Q. That is not the fault of the ice cream manufacturer is it?"

"A. Yes, ice cream manufacturers supply the account with that cabinet. It is the same as supplying them with a soda fountain."

This same witness from Chicago confessed that his firm, in 1955, had a cabinet expenditure for repairs, maintenance, delivery, and installation, not including the purchase price of the equipment, of \$20,000. His net profit on ice cream sales of nearly half a million dollars was only \$2,000.

Asked how long a cabinet will serve a customer, a Seattle ice cream company executive said that it used to be 10 years.

"Now," he said, "due to the great changes in styling of the cabinets, the modern cabinets

are coming out with a different type of cabinet every five years, so the life of the cabinet, I would say, is about five years."

"Q. Is the cabinet after five years valueless?"

"A. For all practical purposes. You can say it is valueless from a merchandising standpoint. It is still mechanically sound and serves the purpose for freezing ice cream or holding ice cream or other food products."

'Stores Demand New Equipment'

"But as the stores are becoming modern and larger, they demand new equipment. So a cabinet we put out five years ago we could not put out now in a modern grocery store, because it is outmoded."

(To Be Continued)

Wm. J. Heggie, Pres. of S. S. Fretz, Jr. Dies

PHILADELPHIA—William J. Heggie, president of S. S. Fretz, Jr., Inc., air conditioning and appliance distributor and a well-known figure in those sales fields, died recently after a short illness. He was 57.

Recently returned from a Hawaiian trip, he entered Lankenau hospital here March 9 and died five days later. He was buried in Chicago.

Heggie first joined the Rex Cole distributing and sales organization in New York City. There, as salesman, sales supervisor, and sales manager, he helped the firm "make national history" in the sale of General Electric Co. refrigerators.

In 1933 he joined the Fretz company as sales manager and was later promoted to general manager. He became president in 1940 following his purchase of S. S. Fretz's stock holdings.

Credited with building the organization from a small heating operation to one of the largest independent wholesale distributors serving this metropolitan area, under Heggie's direction the Fretz firm added such

lines as Chrysler Corp. Airtemp Div.'s heating and air conditioning equipment, Revco, Inc. freezers and refrigerators, Emerson room air conditioners, "Thermador" refrigerators, freezers, and water heaters, "Ductless Hood" filters, and Scotsman ice machines.

New Market Gets 80 Ft. Of Refrigerated Cases

ST. LOUIS—Completely air conditioned, National Food Stores, Inc. has opened its fourth new unit of 1958 at 2707 Woodson Rd., Overland, the firm announced.

More than 80 lineal feet of refrigerated cases have been installed in the 15,000-sq. ft. store.

There is also an air conditioned meat processing room, which houses a semi-automatic wrapping machine for pre-packaged meats, the food chain explained.

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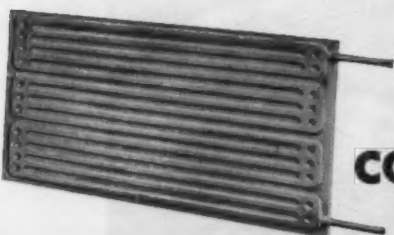
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LOW COST SAVE SPACE
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MINIMUM FIELD SERVICE

The simpler your system, the lower your cost, and you gain greater efficiency! Don't let extra gadgets throw your budgets out of whack. Use Dean Cold Plates.

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Air Distribution Requirements In Year-Round Air Conditioning

Putting Psychrometry To Work (4)

By Frank D. Klein, Chief Engineer, Governair Corp.

The curious effect that various conditions of air have on volume has been discussed arithmetically in the preceding material. It has been established that as a general rule when design factors are developed with subsequent selection of equipment for handling the air involved, such selections are made from standard ratings derived from expressions in "Standard Air," or air corrected to density at 70° F. and 29.92 inches of mercury.

Because a given volume of air will weigh a given amount at different temperatures and pressures, the basis of a standard must be established. Density may be defined as the Unit Weight of a volume of an atmosphere when the weight is divided by its volume. When the weight is measured in unit of pounds and the volume in cubic feet, the Density is then expressed in pounds per cubic foot.

Density of atmospheres decrease with Temperature as temperatures rise, but decrease proportionately with the altitude above sea level. The Weight of an atmosphere varies not only with the barometric pressure, but with the vapor content it possesses as well.

This matter of knowing about and possibly compensating for the variable weight in air atmospheres is highly important to the system designer as well as the equipment designer. The Trane Co. in its educational

material provides, as do others publishing like material, a quite simple method and system for determining the volume of various air vapor mixtures.

Trane developed and offers for sale in pad form a "Volume Chart," which looks very similar to its Psychrometric Chart, the form of which has been used in the various illustrations of these articles, with the exception that they eliminate the curves of Percentage Humidity, and the direct reference lines to Wet Bulb Temperatures.

Because the answers become to me, in calculations, a segment of the entire psychrometry of a problem, I have drawn the volume lines from the Trane Chart on a durable translucent overlay of 8½ by 11 in. to match the regular psychrometric chart. The result looks like the illustration in Fig. 11.

The heavy diagonal lines of Constant Volume, when overlaid, simplify somewhat the complete analysis of a problem already accomplished on the psychrometric chart.

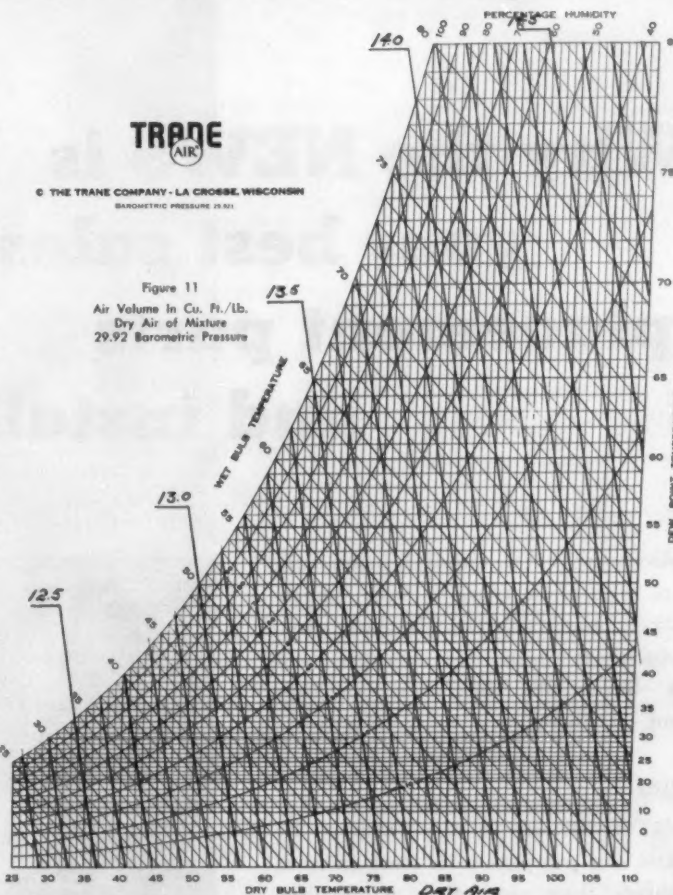
These lines of Constant Volume once again are predicated on the expression of volume in cubic feet per pound of Dry Air at 29.92 in. of Hg. However, equational formulae as shown in the following can be used to determine the conditions under other barometric pressures.

As an example of the use of this Volume Chart consider the problem that follows:

TRADE
AIR

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BAROMETRIC PRESSURE IN IN.

Figure 11
Air Volume in Cu. Ft./Lb.
Dry Air of Mixture
29.92 Barometric Pressure



Example A:

1. A centrifugal blower is known to be handling 1,365 cu. ft. of air whose Dry Bulb Temperature is 80° F. and 67° F. Wet Bulb. What is the Dewpoint and what is the equivalent pounds of air being handled?

2. From the psychrometric chart we find that the Dewpoint of 80-67 air is 61°.

3. By following the lines of Constant Volume shown in Fig. 11 we find that the volume of One Pound of air at 80° DB-61° DP is approximately 13.85 cu. ft.

4. Arithmetically then: 1,365 cu. ft. would weigh approximately 98.5 lbs.

Example B:

1. Find the volume of 500 lbs. of air having a Dry Bulb Temperature of 76° F. and a Dewpoint of 57°.

2. Refer to Fig. 11 and we find that One Pound of air at 76° DB-57° DP is equivalent to: 13.70 cu. ft.

3. 500 x 13.70 = 6,850 cu. ft. Remember once again that the

above expresses air, though at variable temperatures and vapor content, does so at standard barometric pressure—29.92 in. Hg.

Conversion to readings at other barometric pressures may be arrived at, according to either pressure in pounds per square inch or inches of mercury as follows.

Example C: Pressure expressed in Pounds Per Square Inch.

$$14.7 - p^v$$

$$v = v^v \frac{P - p^v}{P - p^v}$$

Example D: Pressure ex-

pressed in Inches of Hg.

$$29.92 - p^v$$

$$v = v^v \frac{P - p^v}{P - p^v}$$

v in the above is equivalent to the volume of one pound of air at any predetermined barometric pressure.

v^v in the above is equivalent to the volume of one pound of air under standard conditions of 29.92 in. of Hg.

p^v is equivalent in the above to the absolute pressure of the vapor in mixture with the air in pounds per square inch or in inches of Hg depending on which formulae is used.

P is equal to the barometric pressure in pounds per square inch or inches of Hg also depending on which formulae is used.

Vapor pressures and their corresponding Dewpoint temperatures can be obtained from the tables published as a part of The Trane Manual, a reproduction of Mark & Davis's Steam Tables published by Longmans, Green & Co., or from the ASH&AE Handbook. Once again (Continued on next page)

**SUBCOOLED
LIQUID FEED AT
CONSTANT PRESSURE
AND SUCTION
TEMPERATURE**

For any refrigerant.
Feed pressure adjustable.

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PRESSURIZED
PLANTS**

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SALES DEPARTMENT MANAGER for major line of residential air conditioning equipment needed by home office of leading manufacturer of air conditioning, heating and ventilating equipment. Besides managerial ability, this man should have five to ten years experience calling on outlets for air conditioning equipment, or in sales at the dealer retail level. Preferably, sales experience should be in residential and/or self-contained air conditioning equipment.

He will be active in all phases of this company's expansion into the residential air conditioning field. Duties will include assisting in training sales personnel, working on advertising plans, and coordination of equipment development programs.

Applicant should be under 35, and a college graduate. For information on our company and the product you will handle, refer to cover story of Feb. 8 issue BUSINESS WEEK magazine.

Act immediately on this opportunity. Send request for interview including resume and salary requirements to: Manager, Staff Employment, The Trane Company, La Crosse, Wis.

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World Headquarters • Dept. Q • Fort Wayne, Indiana

Air Distribution -- Rochester Cooling Group Compressors -- Vanguard Tracker --

(Continued from preceding page) information necessary to and tools of the serious application and design engineer, and made available to all.

The influence of the thermodynamic properties of air—water vapor mixtures is great and definitive, not only on systems as such but the integral air moving equipment. The mechanical efficiency, for instance, of fan and blower equipment is gauged and standardized by predetermined analysis of air—vapor mixtures, that they in turn may be expressed in performance under standard air conditions where standard Density is established at .075 lbs. per cu. ft.

Probably it seems a far cry that such emphasis should continue to be placed on the Psychrometric Properties of Air, especially to those concerned with the smaller residential systems of the year-round type. It is generally conceded among application engineers and contractors concerned with this type of work that the manufacturer of the equipment has in some miraculous way foreseen all of the possible mis-applications of his equipment that they may encounter and therefore such concern is "ivory-tower."

Actually, the combination of heating and cooling, with the variable air conditions characteristic of each cycle, is even more important in applications involving the residential comfort zone than that normally encountered in commercial application, and underscore such an opinion by citing the fact once again that the average American family spends better than 70% of their time in the home or residential atmosphere.

Furthermore, water vapor in air volumes has a specific thermodynamic as well as physiological function, when distributed to areas whose comfort zone is produced synthetically.

The proper knowledge of and the use of the Psychrometric Chart cannot be stressed too much, whether it be used for basic analysis which has been done in the previous information here, or modified in conjunction with air volume calculations. Specific analytical knowledge of the condition of an air atmosphere to be re-conditioned is imperative.

(To Be Continued)

Names Betlem President

ROCHESTER, N. Y.—Newly-incorporated Air Conditioning Association of Rochester has elected Jan Betlem, Betlem Air Conditioning Co., president.

John Andrew, Ancoma Cooling & Heating Co., was elected vice president, Robert Hilliard, Rochester Gas & Electric Co., secretary, and Fred Baumbach, Climate Equipment & Supply Co., treasurer. Betlem, Andrew, and Hilliard were also named directors.

Objectives of the association are: to maintain high standards of quality in design and installation of air conditioning equipment; and to provide technical, service, and sales training to member firms.

Carrier Drives--

(Concluded from Page 1, Col. 2) cial, "in the identification of 1½ and 2-hp. sizes."

To back this up, Gray says, Carrier will discontinue, as quickly as practicable, all reference to horsepower on its room air conditioners.

"Henceforth," he declares, "we will identify the unit size by certified B.t.u.-per-hour capacities as recently put forth in a standard adopted by the Air-Conditioning & Refrigeration Institute. All advertising and printed literature soon will conform to this new policy and all our dealers are being asked to cooperate."

In conclusion Gray states, "Carrier Corp. takes this considered step in the belief that the room air conditioner industry will not fully prosper until the public can buy its wares in full confidence."

"We hope that all responsible manufacturers and dealers will join with us and adopt a similar policy."

Waco Blast--

(Concluded from Page 1, Col. 2) sticks were found in an architect's office where the explosion blew out a section of wall in the one-story brick building, and two more sticks were in a rest room.

The work, police said, apparently was that of an amateur who probably figured the concussion of the blast would set off the 43 other sticks of dynamite.

(Concluded from Page 1, Col. 2)

Shipments of 2-hp. compressor bodies in 1957 were 225,749 units, compared with 70,118 in 1956. Automotive compressor bodies accounted for shipment of 470,539 units in 1957, against 284,022 in the previous year. Lesser gains were reported for 10, 25, 30-and-over-hp. units.

The figures were prepared on the basis of reports from 17 manufacturing companies estimated to represent about 95% of total U.S. production of compressor bodies of the types covered.

A tabulation of 1957 shipments and those for December, follows, together with names of reporting companies:

MANUFACTURERS' SHIPMENTS OF COMPRESSOR BODIES

Produced by Reporting Companies (Except for household refrigerators)

Horsepower*	Dec., 1957	Jan.-Dec., 1957
1/4 & under ...	22,243	406,866
1/2 ...	44,604	770,043
3/4 ...	10,713	237,124
1 ...	5,197	101,915
1 1/4 ...	4,146	96,618
1 1/2 ...	50,790	890,710
2 ...	26,615	248,427
2 1/2 ...	14,516	225,749
3 ...	5,434	99,052
3 1/2 ...	3,316	71,628
4 ...	2,125	43,145
5 ...	597	10,070
6 ...	262	3,700
8 ...	119	2,255
10 ...	130	1,915
12 & over ...	506	7,231
Total ...	191,313	3,484,448
For Ammonia Refrigerant—Total ...	126	1,518
For Automotive Air Conditioning—Total ...	32,017	1470,539
Grand Total ...	223,456	3,956,505

*For all refrigerants except ammonia (excluding units for automotive air conditioning).

†Includes revised data reported to ARI.

Reporting companies: Airtemp Div., Chrysler Corp.; Bendix-Westinghouse Automotive Airbrake Co.; Brunner Div., The Dunham-Bush; Carrier Corp.; Copeland Refrigeration Corp.; Curtis Mfg. Co.; Refrigeration Div.; Frick Co., Inc.; Frigidaire Div., General Motors Corp.; General Electric Co.; Kelvinator Div., American Motors Corp.; Lehigh, Inc.; Tecumseh Products Co.; Trane Co.; The Vilter Mfg. Co.; Westinghouse Electric Corp.; Worthington Corp.; York Div., Borg-Warner Corp.

This summary includes all compressor bodies shipped by the reporting companies regardless of whether they were shipped separately or incorporated into a condensing unit or unitary end-use product (such as a room air conditioner display case, freezer, or commercial refrigerator). Shipments for export are included. Shipments for household refrigerators are not included.

In order to avoid duplication of reporting, shipment figures were requested only from companies that assembled the machined compressor casting with the components necessary to make a complete compressor or motor-compressor assembly.

(Concluded from Page 1, Col. 3)

orbit or, for military purposes, if a nuclear-laden missile is on line with its distant target. The tracking radar device electronically locks on a target and its antenna mechanism can slew at tremendous rates in order to keep the target locked in the needle-like beam of the radar.

Missile experts say a rocket's accuracy can be determined in the first few seconds of flight. A diminutive error at the start can mean hundreds of miles at destination.

This demand for extreme accuracy is reflected in the tracking station itself. The tower with its 12-ft. scanning disc is mounted on a cement base that was meticulously surveyed into the proper position.

The tower is protected on all sides by an air conditioned building shielding it from winds and sun which could upset its micrometer-like calculations.

Carrier Corp., which is supplying air conditioning equipment for 26 of the 28 tracking stations, says the cooling job is two-fold. One system will be used to cancel the tremendous heat produced by the electronic equipment and the 1,000 vacuum tubes—some over two feet tall.

The second air conditioning systems produces exactly constant temperatures, not just for the comfort of personnel, but to avoid temperature extremes that could offset the minute readings required of the sensitive equipment.

The cooling systems were designed by A. A. Duckett, Car-

rier distributor in Camden, N. J., to operate efficiently at altitudes up to 10,000 ft. Special air handling equipment was developed by Carrier.

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of a serviceman's time to seal hermetic terminal leaks on the job in most refrigeration and air conditioning units, with . . .

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Terminal leaks on sealed units are stopped instantly and permanently with WATSCO Terminal Seals. All work is done from the outside of the dome, and no special tools are required. Do it right on the job.

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Packed with every Terminal Seal kit . . . a special locking nut, complete with instructions, to facilitate removing corroded and tight nuts . . . without twisting or damaging the terminal post.

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FACTORIES: Punxsutawney, Pa., Spartanburg, S. C. WAREHOUSES: Pittsburgh, Pa.; Trenton, N. J., Memphis, Tenn.

Refrigeration Problems And Their Solution (As Written by Paul Reed)

Building Up Pressure for Leak Testing (4)

WHAT ARE THE PRESSURES OF THE MIXTURE?

If the Refrigerant-12 pressure is 7 p.s.i.g., and we put 143 p.s.i.g. of CO₂ in with it, what will a pressure gauge show—143 p.s.i.g., the pressure of the CO₂, or 150 p.s.i.g., the pressure of the Refrigerant-12 and the CO₂ added together?

Dalton also found that in a mixture of two gases, the individual pressures of each of the gases added together to form the total pressure. That is, if there is a pressure of 7 p.s.i.g. of Refrigerant-12 in a coil and we add 143 p.s.i.g. of CO₂, the total pressure in the coil will be equal to the two gas pressures added together.

In this case, the total pressure will be 150 p.s.i.g. If we started out with 7 p.s.i.g. of Refrigerant-12 and built it up to 150 p.s.i.g. with CO₂, 143 p.s.i.g. of the 150 p.s.i.g. would be the pressure of the CO₂ and 7 p.s.i.g. of the Refrigerant-12.

Dalton's discovery of these matters is known as "Dalton's Law of Partial Pressures." It is one of the most important scientific laws that affect refrigeration and air conditioning. It is the very basis of psychrometry.

In effect, Dalton's law says that in a mixture of gases, the total pressure is the sum of the partial pressures of the individual component gases. So a gauge on the coil would read 150 p.s.i.

DOES THE REFRIGERANT-12 CONDENSE WHEN THE PRESSURE RISES TO 150 P.S.I.G.?

But how do the gases act? Does each gas act according to its partial pressure or according to the total pressure?

Take our locker room coil. It is at -4°, and at that temperature the Refrigerant-12 pressure is 7 p.s.i.g. We add CO₂ pressure and raise the total pressure in the coil to 150 p.s.i.g. What happens to the Refrigerant-12 at -4° and 7 p.s.i.g.? Does it condense as soon as the pressure goes up? If it does condense, does it turn into a liquid and leave only CO₂ gas in the cylinder? If so, our halide torch will be unable to find any leaks, for the halide torch does not react with CO₂; it changes color for the halogen refrigerants only.

The total pressure has no effect on the Refrigerant-12. The Refrigerant-12 exists in the coil the same as if the CO₂ were not in there with it. Its pressure of 7 p.s.i.g. is affected only by temperature, not by the total pressure. If the temperature of the plate coil goes up, the pressure of the Refrigerant-12 of 7 p.s.i.g. goes up, too. Same with the pressure of the CO₂; it goes up with temperature. So the total pressure goes up because both partial pressures become greater with an increase in temperature.

PARTIAL AND TOTAL PRESSURES VARY WITH TEMPERATURE

If the plate coil is chilled, so that its temperature drops below -4°, then the 7 p.s.i.g. drops. When that happens, some, but not all, of the Refrigerant-12 gas condenses to a liquid.

If the temperature of the plate drops from -4°, to let us say, -10°, then its pressure drops from 7 p.s.i.g. to 4½ p.s.i.g. in accordance with the Refrigerant-12 table of saturated temperatures and pressures. But it doesn't all condense; some of it does in order to establish the new pressure, volume, and heat content conditions that go with a -10° temperature. But there would still be Refrigerant-12 vapor in the plate. At the same time, the CO₂ pressure would drop from 143 p.s.i.g. to about 141½ p.s.i.g., when the temperature dropped from -4° to -10°, so the new total pressure would be approximately 146 p.s.i.g. instead of 150 p.s.i.g.

CHANGE IN TOTAL PRESSURE DOES NOT CHANGE BOILING POINT OF REFRIGERANT-12

But this is wandering a bit from our question of: "Would the Refrigerant-12 condense when the CO₂ pressure was added and the pressure in the plate coil was raised from 7 p.s.i.g. to 150 p.s.i.g."

The answer is "No"; for although the total pressure became 150 p.s.i.g., the Refrigerant-12 pressure was still 7 p.s.i.g. and it is the temperature of the Refrigerant-12 and its partial pressure of 7 p.s.i.g., that control the condensation or boiling point of the refrigerant—not the total pressure.

BUILDING UP PRESSURE IS O.K.

So, from all angles, this method of building up the refrigerant pressure with CO₂ so as to enable us to find leaks more readily, is quite feasible. Especially, it is helpful in finding leaks in cold coils that cannot be warmed up, as in locker plants, ice cream hardening rooms or cabinets.

Instead of CO₂, nitrogen could be used; in fact, it has the advantage of being somewhat more drying than CO₂, and is quite inert toward the refrigerants, oil, metals, etc.

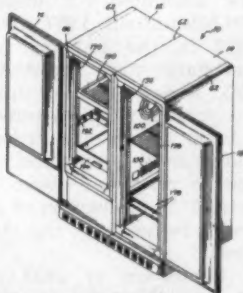
Dried air can also be used, but it is rarely available except in factories. CO₂ and nitrogen are the most satisfactory inert gases generally available. Never use oxygen.

Remove the CO₂ after the test. As indicated in the previous issue, the mixture of Refrigerant-12 and CO₂ should be completely evacuated from the coil, and a good vacuum drawn before the coil is re-connected to the system.

PATENTS

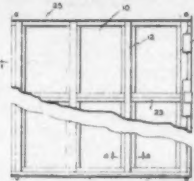
Week of Dec. 10

2,815,649. REFRIGERATOR. Anthony Di Angelis and Anthony R. Costantini, Havertown, Pa.



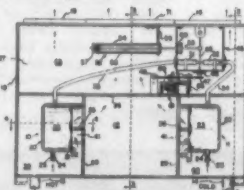
1. In a refrigerator having inner liners, at least two pairs of vertical posts provided with vertically spaced openings, means securing said posts in the interior of the refrigerator to the liners so that the openings are in horizontal alignment, suspending members removably engaged in selected pairs of openings and adapted to support a food-retaining member, each post being C-shaped and said first-named means including insert brackets slidable in said posts, means fixing said brackets at desired locations to said posts and screws extending through selected openings in said posts, through openings provided in said brackets and through the liners.

2,815,684. ELECTRONIC PRECIPITATOR. John A. Armstrong and Philip Cooperman, Plainfield, and Harry J. White, Basking Ridge, N. J., assignors to Research Corp., New York, N. Y.



1. In an electrostatic precipitator having a plurality of spaced parallel discharge electrodes arranged in a row, and collecting plate electrodes extending in parallel spaced relationship to the row of discharge electrodes, the combination with said collecting electrode plate of a plurality of baffles extending in parallel spaced relationship from the plate electrode transversely of the direction of gas flow, each of said baffles comprising a base portion extending normally to the extended surface of the collecting plate and to the direction of gas flow, and a leg portion sloping inwardly and upstream from the extended edge of the base portion to the collecting plate, thereby providing right triangular baffle structures projecting into the gas stream and presenting a sloping face upstream and a substantially perpendicular face downstream, the baffles on opposed plates being positioned in opposed parallel relationship.

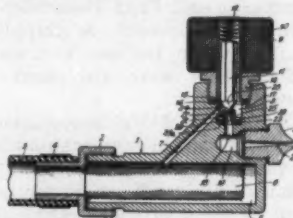
2,815,915. AIR MIXING APPARATUS HAVING TEMPERATURE AND PRESSURE CONTROL. Paul G. Salerno, Elmwood Park, Ill., assignor to Minneapolis-Honeywell Regulator Co., Minneapolis, Minn.



5. In airconditioning apparatus for controlling the temperature of the air of a space and the rate of delivery of air to the space and having a plenum, in combination: a first inlet air conduit for supplying air at one temperature, a second inlet air conduit for supplying air at a different temperature to said space; first and second pressure operated valve means; means

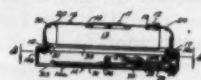
including said first valve means for connecting said first inlet conduit to the plenum and means including said second valve means for connecting said second inlet conduit to said plenum; first and second pressure control means, said control means each having a common discharge chamber; means connecting said first and second valve means, respectively for simultaneously and oppositely controlling said valve means. . . .

2,815,923. VALVE WITH AUTOMATIC RATE-OF-FLOW CONTROL. Kendall Clark, Glen Ellyn, Ill., assignor to General Electric Co., a corporation of New York.



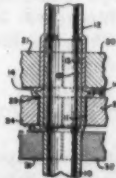
5. In a valve, a body having a valve chamber and inlet and outlet passages respectively communicating therewith, a valve seat element secured within said chamber at the entrance of said outlet passage, said element having an elastic tubular body portion of substantially less outside diameter than said chamber and an axial passage concentric with said outlet passage; the axial passage of said valve seat element, commencing at its inlet end and extending for the greater portion of said elastic body portion, being of substantially smaller diameter than said valve body outlet passage and then increasing to said valve body outlet passage diameter. . . .

2,816,213. LIGHTED ROOM THERMOSTAT. Harold A. McIntosh, Los Angeles, Calif., assignor to General Controls Co., Glendale, Calif.



10. A wall thermostat structure including: a base; a cover for the base; a thermostatic element supported between the cover and the base; means supporting the cover on the base for movement toward and away from the base; means biasing the cover toward a normal position away from the base; means for illuminating the thermostat; and means responsive to movement of the cover toward the base for operating said illuminating means.

2,816,211. REFRIGERATING APPARATUS. Everett C. Hutchins, Dayton, Ohio, assignor to General Motors Corp., Detroit, Mich.



1. The method of joining an aluminum tube having an aluminum bell

Editor's Note: Patents described here have been selected from the "Official Gazette" of the United States Patent Office. They offer only a brief summary of each invention. In some instances only the first part of the digest is presented.

Printed copies of patents, reissued patents, and patent designs may be secured from the Patent Office; patents and reissues are 25¢ each, while designs are furnished at 10¢ each. Address orders to: Commissioner of Patents, Washington 25, D. C.

to a copper tube having a first copper bell of substantially the same inner dimension as that of said aluminum bell and having a second copper bell at the end of said first copper bell which second copper bell has an inner dimension substantially the same as the outer dimension of said aluminum bell which comprises: telescoping said aluminum bell into said second copper bell with a steel tube within said bells; and pushing said tubes toward each other to cause said second copper bell to bulge outwardly to form an inner cavity and to cause said aluminum bell to bulge outwardly into said cavity while limiting inward movement by means of said steel tube.

(To Be Continued)

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MANUFACTURER'S REPRESENTATIVE who is now calling on architects, kitchen equipment firms, and restaurant supply houses. An excellent market is developing in the food serving industry for our push-thru refrigerator. Nothing quite like it. Also complete line of walk-ins, reach-ins, pass-thru, and sliding doors refrigerated. New England open, protected territory. Must have a following. BOX A5984, Air Conditioning & Refrigeration News.

EQUIPMENT WANTED

WANTED: USED ice machines—preferably Scotsman Flakers and Cubers. In reply, state model, year, serial, condition and asking price. Can use one or fifty. **WATERS EQUIPMENT COMPANY, INC.**, Phone: RE 7-5377, P. O. Box 10013, Tampa, Florida.

EQUIPMENT FOR SALE

FOR SALE—Locker plant equipment. Three Tandem 50 hp Chrysler radial compressors with three evaporative

condensers, and eight floor-type product coolers, complete with all magnetic starters, relays and controls. Equipment in A-1 shape for locker plant 88' x 52'. Will sacrifice. **BODNER-SHAMES, INC.**, 1601 Monticello Ave., Norfolk, Va.

REPLACE YOUR tool box with a Handi-Roll! Sturdy, water-resistant duck. Ample tool capacity. Not a catch-all. Minimum carrying-weight, with locking strap and handle. Price \$5.95. Send for free folder. See your jobber, or send check to **HANDI-ROLL COMPANY**, 12381 Wisconsin Avenue, Detroit 4, Michigan. Postpaid. Manufacturers' agents wanted.

LATEST STYLE 57 production 1 h.p. 230 V. single phase 50/60 cy. Freon-12 hermetic compressors. Model AS1T16 air conditioning HBP. Complete with Klaxon overload, relay, starting and running capacitor. \$59.00 ea. Send for free circulars and bulletins on air conditioning and refrigeration values. **WALTER W. STARR**, 2883 Lincoln Ave., Chicago 18, Illinois.

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AIR CONDITIONING and refrigeration sales and service—14 years in Central Missouri. Approximately \$6000.00 inventory. 30 x 60 warehouse includes shop and office. \$12,000.00 complete. Home optional—\$6000.00. Major lines. Walk into established business. Opportunity for man interested in own business. Leaving state. BOX A5995, Air Conditioning & Refrigeration News.

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Servicing Automobile Air Conditioners

(Vol. 2)

BY C. DALE MERICLE

The Chevrolet auto air conditioner is the fifteenth make to be discussed in this series. Makes previously described were A.R.A., Artic-Kar, Frigette, Frigikar, Kauffman, Mark IV, Airtap, Mobilette, Novi, Vornado, Polar-Temp, American Motors, Buick, and Cadillac.

CHEVROLET (2)

Chevrolet Motor Div.
General Motors Corp.
Detroit 2, Mich.

Controls

Seven control knobs are provided on the 1956 Chevrolet conditioner. (Control system of the 1957 unit will be described separately.)

Five of the 1956 controls move through slots in a panel mounted on the car instrument panel to the right of the steering column. Two pull-out knobs are mounted on the instrument panel lower flange below the

control panel.

The lower left pull-out knob or by-pass control regulates amount of air distributed through adjustable nozzles at each end of the instrument panel and to the front compartment floor by means of a by-pass duct in the duct assembly.

When this knob is pulled fully out, the maximum amount of air is delivered to the instrument panel outlets and a minimum to the floor outlet. When heating is desired, this knob is usually pushed all the way in to block air passage to the instrument panel outlets.

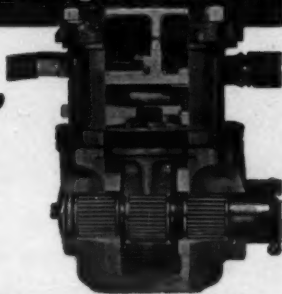
Lower right pull-out knob is a manual throttle or fast idle

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FIG. 5—Wiring diagram of 1956 Chevrolet air conditioning system.

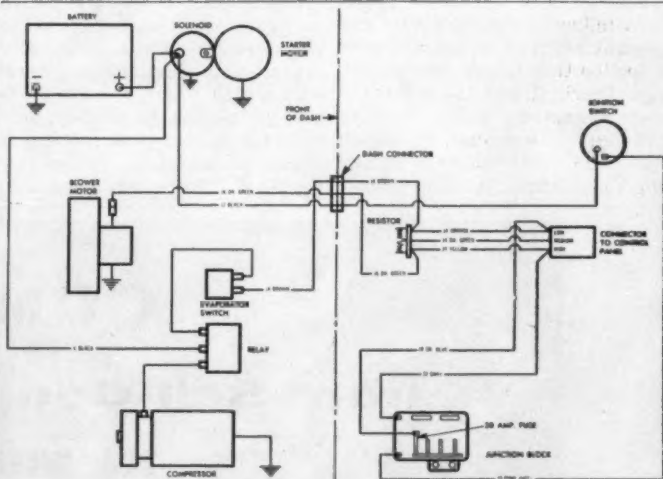
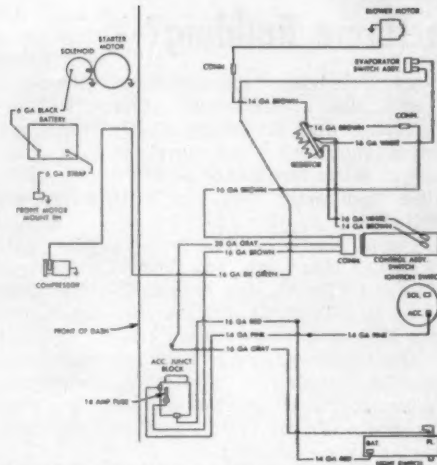


FIG. 6—Wiring diagram of 1957 Chevrolet air conditioning system.

control. To obtain sufficient cooling when the car is parked or idling, this knob is pulled to the "out" position, increasing engine speed to 900 r.p.m.

Top lever of the control panel moves horizontally left to right from "Off" to "Fan" and "Hi" positions. Detents in the slot permit fan operation at low, medium, or high speeds. This control lever has a switch wired in series with the magnetic clutch control circuit so that the clutch and compressor can only be engaged when this lever is set to one of the three blower speed positions. Merely moving this lever to the right, however, does not in itself engage the clutch.

Below the fan control lever is another lever that moves horizontally, stopping either at "Outside Air" on the left or "Inside Air" on the right. By a flexible cable connected to a door hinged over the cowl intake

passage, this control regulates the amount of outside air or recirculated air admitted to the conditioner and car.

Lower section of the control panel contains three levers moving in a vertical position. "Heat" lever on left controls heating thermostat. Maximum heating is obtained when this lever is in full down position.

"Refr" lever in center controls magnetic clutch and thermostat. Moving this control down about 1/4 in. closes the thermostatic switch and engages the clutch and compressor, provided top fan control lever is set for fan operation. The thermostat is located in the air duct near the blower. Maximum cooling is obtained with this lever in full down position.

"Defr" knob on right controls air to windshield defroster outlets. Maximum air is delivered to defroster outlets with this lever in full down position.

Control panel on 1957 Chevrolet conditioners is similar in principle to the 1956 panel, and it is likewise located on the car instrument panel to the right of the steering column.

Top lever, which moves horizontally, is the three-speed blower control switch. Below this are six levers that move in vertical slots.

"Air Vent" lever at extreme left controls damper on left fender air duct to allow outside air to enter the car.

Next is the "Outlet" lever. With this lever all the way down, air flow from the conditioner goes to outlet nozzles on the instrument panel. As this lever is pushed up, air is diverted to floor outlet.

"Cold" lever controls the thermostat setting and thus the operation of the magnetic clutch and compressor. Maximum cooling is obtained with this lever in full down position.

"Heat" lever controls hot

Service & Supplies

water thermostatic valve. Maximum heating is obtained with this lever in full down position.

"Defr" lever controls air delivery to windshield defroster outlets. Full down position gives maximum air delivery to defroster outlets.

"Air" lever on extreme right is pushed upward to "Inside" setting to permit operation on 100% recirculated air or downward to "Outside" setting for 100% outside air. When this lever is in intermediate position, outside air flows directly into the car without passing through the heating or cooling coils.

As on the 1956 models, a fast idle control knob is below the panel.

Wiring

Wiring diagram of the 1956 Chevrolet conditioner is shown in Fig. 5.

Fig. 6 is the wiring diagram of the 1957 system.

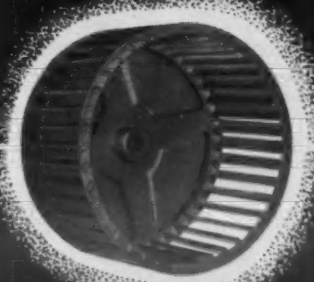
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'Blue Skies' Ahead In Home Building?--

(Concluded from Page 1, Col. 4) includes requests for insured financing of existing homes and living units in rental and co-operative projects.

February applications to finance sale of existing homes amounted to 28,900 units, 16% higher than January and nearly double February, 1957. FHA reports this figure represents an annual rate exceeded only twice in its history.

Officials of two other U.S. agencies closely connected with housing estimated new home construction this year would run about the same as last.

A pickup for the second straight month was also shown in the GI housing program in February. Appraisal requests for new and existing homes rose, but housing starts and loan applications slumped again.

Veterans Administration said appraisal requests for new homes, an indication of new home building plans, climbed to 5,301 in February compared with 5,252 the previous month. Appraisal requests for existing homes went up to 2,221 from January's 2,052.

Mortgage debt carried by the nation's homeowners zoomed to a record total of \$107,600,000,000 at the end of 1957, according to the Federal Loan Bank.

New mortgages written during 1957 amounted to \$8,600,000,000 for the smallest increase in mortgage debt since 1953, the board said, and reflected the impact to tight money on that market. However, the board pointed out the downward trend of mortgage financing which began in 1955 has been halted and "present indications point to a revival of activity this year."

Meanwhile the Federal Reserve Board clipped a half percentage-point off member bank reserve requirements for the second time in a month to help curb the slump.

This anti-recession move will free some \$490 million from the amounts banks must keep on reserve against demand deposits. Since it is the theory that for every dollar released by such action, six are placed in circulation, this would in effect put about \$3 billion into the money marts. Lower rates took effect for city banks March 20 and apply to the rest April 1.

Specifically an economic move aimed at promoting business recovery, the FRB said the trend is still downward, but tenor of conditions has not changed in the last month. It indicated some 37% of persons surveyed on the economic picture expected to make more money this year, just 3% less than a year ago. Those who foresaw no change this year totaled 35%—same as in 1957. Consumers who expect to make less this year amounted to 11%, up from the 7% in the 1957 survey, FRB said.

Intentions to spend on home improvement and maintenance was about the same as in other recent years, it was added, while plans to buy furniture and appliances were only slightly below last year's buying inten-

tions. For both home improvements and maintenance and furniture and household appliances, purchase plans were reported more frequently in early 1958 than early 1954, the FRB stated.

Along that line, in Detroit Homer L. Travis, vice president-sales of Kelvinator Div., American Motors Corp., declared that if the major appliance business is a fair barometer, the national economic "weather" has passed its worst storm period and is beginning to improve.

Stating that the major appliance industry foreshadowed the general business downturn with a decline that began over a year ago, Travis thinks the low-point was reached last October through December. "Since then," he said, "at least in our own experience, monthly bill-

ings have begun to pick up, January gaining over December, and February showing a further increase over January."

Refrigerators led the way, he continued, in February with a 33% rise over January, leading five key products which collectively were up 16%.

"Although industry model year figures to date still lag behind a year ago," Travis noted, "the trend seems to be turning up, with refrigerators showing a particularly encouraging comeback after a December performance that was the industry's poorest for a single month since 1954."

Giant General Electric Co. reports it is "making plans on the assumption the nation will resume its long-term growth within the year, following the present period of adjustment."

In his annual report, Ralph J. Cordiner, president, stated that for G-E "the most reassuring

element in the national picture is the long-term growth in the use of electricity."

It is significant, he pointed out, that the electric utilities have announced their plans to add nearly twice as much generating capacity in 1958 as they did in 1957.

On March 19 the House passed the housing bill previously okayed by the Senate and sent it to the President for signature to make it law. It would make \$1,850,000,000 available for government-backing of home mortgages and extend veterans housing programs (WW II vets) for two more years.

Officials said the bulk of the funds voted are slated to come from private sources. They reported they don't expect the full impact of the speedup in housing to come for another six months.

The new housing bill awaiting President Eisenhower's sig-

nature would set up a new special assistance category under Federal National Mortgage Association with a revolving fund of \$1 billion for purchase of mortgages of up to \$13,500 in principal amount backed by the Federal Housing Administration or Veterans Administration.

Also increased under the new bill would be FNMA's special assistance fund from \$450 million to \$950 million for use in purchasing home mortgages not otherwise marketable. It would provide an extra \$300 million spread over fiscal 1959 and 60, starting this July 1, for direct housing loans to vets and add \$50 million to Fannie Mae's authority for purchase of military housing mortgages.

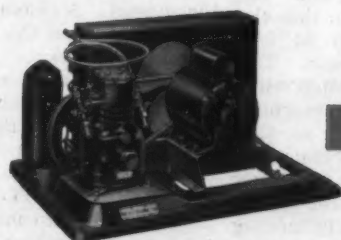
In addition, the legislation would ease down payment requirements for FHA-backed mortgages and would repeal a 1957 law requiring the VA and FHA to set discount limits on the mortgages they insure.

CONVERT

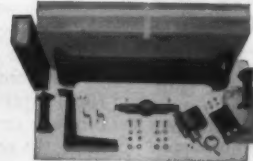
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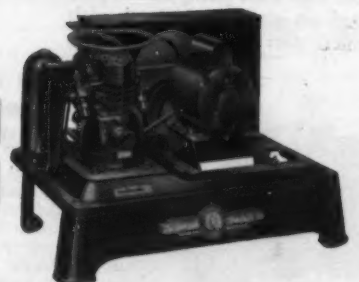
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Tecumseh designed this line so you can cover a variety of commercial applications at a considerable savings in cost, inventory and shipping.

Tecumseh's new Remote Kits allow one man to remote a self-contained unit in minutes, on-the-job. Two compact, lightweight kits fit all air or water cooled models. The air cooled kit contains two cast iron back legs—one cast iron front panel and name-plate — one stamped steel belt guard and mounting bracket — one control box and mounting bracket — and all necessary fasteners. The water cooled kit includes the back legs, the front panel and name-plate, plus the fasteners.

Note that the Tecumseh Remote Condensing Unit is built up from a standard Self-Contained Unit, plus Tecumseh's Remote Kit. Consider the cost, space and paperwork you save and at the same time, stock a complete line of air or water cooled units. Investigate selling features such as built-in low side oil separators on all units from 3/4 to 3 HP included in this practical, economical line. Here are savings that mean more profitable sales!



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